

"I want 30 cents
worth of light for
45 cents!"



*That's practically what you say when
you buy many a "BARGAIN" BULB*

Let's see what happens when somebody sells you a "bargain" lamp bulb. Let's burn this "bargain" in an electrical laboratory beside a genuine G-E MAZDA lamp. Let's suppose we burn both lamps a thousand hours at average current costs.

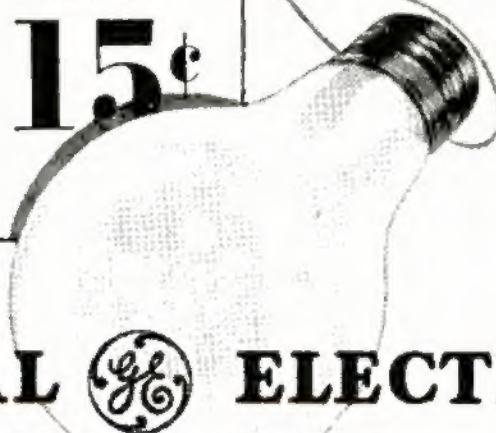
Here is an expert's report:

"Assume the price of a good lamp—such as a G-E MAZDA lamp—is 15¢ and the price of the so-called 'bargain' lamp is as low as 10¢. On the basis of the same amount of light for 1000 hours, for every dollar spent to burn the good lamp, it would be necessary

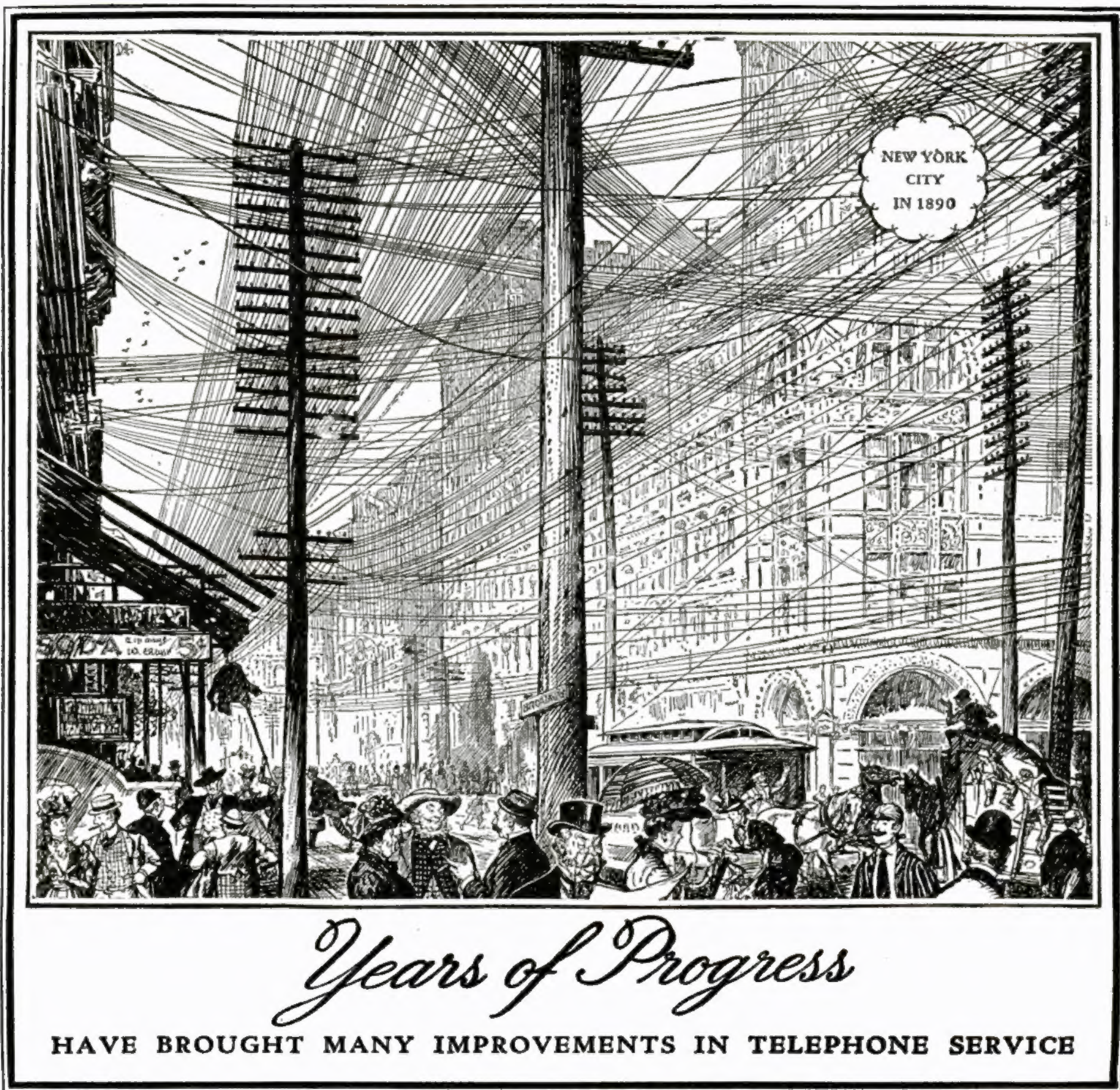
to spend over a dollar and a half to burn the inferior brand . . . or fifty per cent more.

"In fact there are 'bargain' lamps on the market today that you could not afford to burn even if you were given the lamps free and handed a one dollar bill with each one besides."

Here is an easy—and sure—way to identify a good lamp. Look for this mark  on every lamp you buy—for any purpose. It identifies a true bargain in light. General Electric Company, Nela Park, Cleveland, Ohio.



**GENERAL  ELECTRIC
MAZDA LAMPS**



BACK in the early days of the telephone, practically all wires were carried overhead on poles or on house-tops. Some of the tallest poles carried as many as thirty cross-arms and three hundred wires.

If the old system were in use today the streets of our larger cities would scarcely have room enough for their canopy of wires. Traffic would be impeded, telephone service subjected to the whims of nature.

Better ways had to be found and the Bell System

found those ways. As many as 1800 pairs of wires are now carried in a cable no larger than a baseball bat. Ninety-four per cent of the Bell System's 80,000,000 miles of wire is in cable; sixty-five per cent of it is beneath the ground.

This has meant a series of conquests of space, and insured greater clarity and dependability for every telephone user. But it is only one of many kinds of im-

provements that have been made.

The present generation does not remember the old days of the telephone.

Service is now so efficient that you accept it as a matter of course. It seems as if it must always have been so. Yet it would be far different today if it were not for the Bell System plan of centralized research, manufacture and administration—with localized operation.



BELL TELEPHONE SYSTEM

When writing to advertisers please mention Popular Mechanics

Popular Mechanics Magazine

H. H. WINDSOR, Founder

H. H. WINDSOR, Jr., Editor and Publisher

October, 1935

Vol. 64, No. 4

Special Features

<u>The Conquest of Static</u>	481
<u>The Latest for the Craftsman</u> ..	Coloroto
<u>Air Masses Tell Future Weather</u> ..	498
<u>Tattletale Trade-Marks of Crime</u> ..	504
<u>Steam Still Rules the Rails</u>	510
<u>Night Owls of the Air Lines</u>	514
<u>Machine-Made Football Heroes</u>	520
<u>Television on Trial</u>	524
<u>Explosion Experts of the Movies</u> ..	530
<u>Riding a Blue Ribbon Liner</u>	536
<u>You Can't Beat Five Aces</u>	546
<u>Split-Second Photography</u>	552
<u>Easy Dog Stunts</u>	562
<u>Heroes of the Flying Cross</u>	568
<u>Seadromes, Says Bleriot</u>	573

(Continued on next page)

War Sentinels of the Pacific

STORM-WRACKED, befogged, a menace to shipping and a grim haven to the shipwrecked are the Aleutian Islands, nearly bridging the north Pacific ocean from Alaska to Asia. These little known volcanic islands, sometimes rising or sinking mysteriously into the sea, may one day be the site of an American "Gibraltar," a scouting and supply base for the air fleet defending our shores. From a hidden "aerie" in this thousand-mile archipelago planes could be dispatched to disperse any warships steaming to attack this country. An article next month, illustrated by eight pages of pictures in color, describes these islands of the north and the part they may play in defense strategy on the Pacific.

Next Month

THERE'S no end of fun in making a pack of cards do stunts. "Just choose any card in the deck," you tell the crowd at an evening party, and a moment later at your command the card fairly leaps out of the pack to dazzle and baffle your friends. With a little practice you can put over the tricks described in the next issue by Richard Cardini, master of card magic.

He's the Big Noise

COUNT G. Mazzaglia Cutelli can fake a noise that sounds more natural than the real thing. He rolls a walnut on a drum head and you'd swear the Graf Zeppelin was overhead. He bounces a basket-ball bladder with buck-shot inside it and you imagine a munitions factory just blew up. An article in the November issue reveals some secrets of this great "sound-maker" for radio studios.

"Down Flaps!"

SIT down in the pilot's seat of a giant transport and take the ship over its route, from the warm-up at the hangar to the "Down flaps!" order that brakes her speed to fifty-eight miles an hour as she touches earth after a 200-mile-an-hour flight. You're partner to a transport pilot in the nose of an airliner in an article next month.

Published monthly by POPULAR MECHANICS CO., 200 East Ontario Street, Chicago, U. S. A. Single copy in United States, 25 cents; \$2.50 a year, \$4.00 for two years in United States and possessions, and countries of the Pan American Postal Union; for Canada, Newfoundland and Labrador, add 50 cents a year extra for postage; to all other countries add \$1.00 a year extra for postage. Changes in address must be reported to us immediately to eliminate delay. Entered as Second Class Matter, Sept. 15, 1903, at the Post Office at Chicago, Illinois, under Act of March 3, 1879. Entered as Second Class Matter at the Post Office Department, Canada. Copyright, 1935, by Popular Mechanics Co. in the United States, Australia and France.



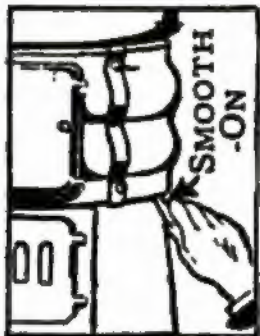
SAVE MONEY ON YOUR HOME REPAIRS

Quick, easy, dependable ways to make over 100 of the commonest emergency and routine household repairs are explained in this free booklet.



Every householder has his unlucky days, when something suddenly leaks, breaks or comes apart, but—you can laugh at many such emergencies and save much money if you keep a can of Smooth-On No. 1 handy and do your own repair work!

Write for **FREE BOOK**



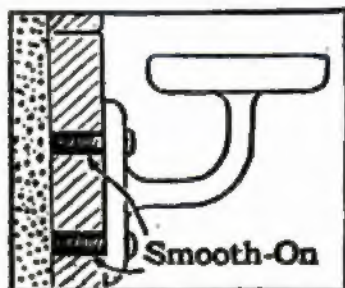
Smooth-On No. 1, applied without heat and without special tools, hardens into metallic iron and holds on any metal. It offers the simplest means of stopping water, steam or gas leaks, and is ideal for use on pipes, boilers, tanks, heating systems and automobile radiators, kitchen utensils, etc. The repairs can usually be finished before a professional fixer could arrive, and

at a very small fraction of the cost of an outsider's work.

Resetting a loose handle, lock, hinge, stripped screw, bolt or nut with Smooth-On No. 1 seldom takes more than several cents worth of material and a few minutes of time, but the repair holds like new.

Properly made Smooth-On repairs are permanent, avoid labor expense, often avoid buying a much more expensive renewal part, and you have the satisfaction of knowing that the work is well done.

A dollar saved is a dollar earned, and the money you can keep each year by utilizing Smooth-On No. 1 at every opportunity is a substantial sum. Perfect results require only that simple instructions be followed.



Get the free booklet by returning the coupon, and buy Smooth-On No. 1 in 7-oz., 1-lb. or 5-lb. can from any hardware store or if necessary from us direct.

Do it with SMOOTH-ON

SMOOTH-ON MFG. CO., Dept. 37

574 Communipaw Ave., Jersey City, N. J.

Please send the free Smooth-On Repair Book.

Name.....

Address.....

10-35.....

YOU'LL NOTICE A Material Difference



WITH GENUINE MASONITE TEMPERED PRESWOOD

THE very first time you build anything with Genuine Masonite Tempered PRESWOOD you'll discover a lot of new features you never knew could exist in construction material.

In the first place, it comes in boards with a surface of iron-like hardness and marble-smoothness. Yet it can be cut and sawed with utmost ease.

Secondly, it is absolutely grainless, and moisture-resisting. Will not warp, chip, split or crack.

Thirdly, Genuine Masonite Tempered PRESWOOD possesses a pleasing, natural, warm-brown finish which can be used without further treatment. However, varnish, paint, lacquer or enamel can be applied if desired.

Fourthly, whenever and wherever you buy Genuine Masonite Tempered PRESWOOD, you will find it absolutely uniform in quality.

Genuine Masonite Tempered PRESWOOD is available from leading lumber dealers in 1/8", 3/16" and 1/4" thicknesses. Send in the coupon below for a sample to experiment with in your own shop.

MASONITE CORPORATION

111 W. Washington St., Chicago, Ill. Dept. PM-10

Please send me a free sample and additional information about Genuine Masonite Tempered PRESWOOD.

Name.....

Address.....

City..... State.....

When writing please mention Popular Mechanics

YOU CAN REPEAT ALMOST EVERY EXPERIENCE IN LIFE

— EXCEPT

life - itself

★

TODAY is life. Tomorrow is a hope. Yesterday is a dream. Nothing is so dead as a day that has passed. Only the trailing clouds of memory remain.

One *today* upon another *today*—how quickly a decade is built! Youth approaches manhood in high heart, embraces maturity as the period of his conquest, then “remembers with a sigh the days that are no more.”

So life goes—like that. NOW is the only opportunity. NOW is the moment of success. NOW men decide—NOW men win or fail.

Are you one of the men who are wondering today what will happen to them tomorrow? Then

remember this: *If you take care of today, tomorrow will take care of itself.* And one of the most important safeguards you can take is to be certain your *training* is modern . . . that you are adequately equipped to master the problems of 1934. Today, in almost every line of human endeavor, ambitious men are modernizing their training by spare-time study of International Correspondence Schools Courses. Their action is a guide to you—and NOW is the time to act! Complete information on any subject in which you are interested will be sent without cost or obligation. The coupon is for your convenience. Return it today.

INTERNATIONAL CORRESPONDENCE SCHOOLS

BOX 5595-H, SCRANTON, PENNA.



Without cost or obligation, please send me a copy of your booklet, “Who Wins and Why,” and full particulars about the subject *before* which I have marked X:



- | TECHNICAL AND INDUSTRIAL COURSES | | |
|--|---|---|
| ☐ Architect | ☐ Heat Treatment of Metals | ☐ Plumbing |
| ☐ Architectural Draftsman | ☐ Sheet Metal Worker | ☐ Steam Fitting |
| ☐ Building Estimating | ☐ Telegraph Engineer | ☐ Heating |
| ☐ Contractor and Builder | ☐ Telephone Work | ☐ Air Conditioning |
| ☐ Structural Draftsman | ☐ Mechanical Engineering | ☐ Steam Engineer |
| ☐ Structural Engineer | ☐ Mechanical Draftsman | ☐ Steam Electric Engineer |
| ☐ How to Invent and Patent | ☐ Machinist | ☐ Marine Engineer |
| ☐ Electrical Engineer | ☐ Patternmaker | ☐ R. R. Locomotives |
| ☐ Electric Lighting | ☐ Gas Engines | ☐ R. R. Section Foreman |
| ☐ Welding, Electric and Gas | ☐ Diesel Engines | ☐ Air Brakes |
| ☐ Reading Shop Blueprints | ☐ Aviation Engines | ☐ R. R. Signalmen |
| ☐ Boilermaker | ☐ Automobile Mechanic | ☐ Highway Engineering |
| | ☐ Refrigeration | ☐ Civil Engineering |
| | | ☐ Surveying and Mapping |
| BUSINESS TRAINING COURSES | | |
| ☐ Business Management | ☐ C. P. Accountant | ☐ Service Station Salesmanship |
| ☐ Office Management | ☐ Bookkeeping | ☐ First Year College |
| ☐ Industrial Management | ☐ Secretarial Work | ☐ Business Correspondence |
| ☐ Traffic Management | ☐ Spanish | ☐ Lettering Show Cards |
| ☐ Accountancy | ☐ Salesmanship | ☐ Signs |
| ☐ Cost Accountant | ☐ Advertising | ☐ Stenography and Typing |
| | | ☐ Civil Service |
| | | ☐ Mail Carrier |
| | | ☐ Bridge Engineer |
| | | ☐ Bridge and Building Foreman |
| | | ☐ Chemistry |
| | | ☐ Pharmacy |
| | | ☐ Coal Mining |
| | | ☐ Mine Foreman |
| | | ☐ Navigation |
| | | ☐ Cotton Manufacturing |
| | | ☐ Woolen Manufacturing |
| | | ☐ Agriculture |
| | | ☐ Fruit Growing |
| | | ☐ Poultry Farming |
| | | ☐ Railway Mail Clerk |
| | | ☐ Grade School Subjects |
| | | ☐ High School Subjects |
| | | ☐ College Preparatory |
| | | ☐ Illustrating |
| | | ☐ Cartooning |

Name.....Age.....Address.....

City.....State.....Present Position.....

If you reside in Canada, send this coupon to the International Correspondence Schools Canadian, Limited, Montreal, Canada

When writing to advertisers please mention Popular Mechanics

Draw me!



TRY FOR AN *Art* SCHOLARSHIP

Copy this girl and send us your drawing—perhaps you'll win a **COMPLETE FEDERAL COURSE FREE!** This contest is for amateurs, so if you like to draw do not hesitate to enter.

Prizes for Five Best Drawings—FIVE COMPLETE ART COURSES FREE, including drawing outfit. (Value of each course, \$190.00.)

FREE! Each contestant whose drawing shows sufficient merit will receive a grading and advice as to whether he or she has, in our estimation, artistic talent worth developing.

Nowadays design and color play an important part in the sale of almost everything. Therefore the artist, who designs merchandise or illustrates advertising has become a real factor in modern industry. Machines can never displace him. Many Federal students, both men and girls who are now commercial designers or illustrators capable of earning from \$1000 to \$5000 yearly have been trained by the Federal Course. Here's a splendid opportunity to test your talent. Read the rules and send your drawing to the address below.

RULES FOR CONTESTANTS

This contest open only to amateurs, 16 years old or more. Professional commercial artists and Federal students are not eligible.

1. Make drawing of girl 5 inches high, on paper 6½ inches square. Draw only the girl, not the lettering.
2. Use only pencil or pen.
3. No drawings will be returned.
4. Write your name, address, age and occupation on back of drawing.
5. All drawings must be received in Minneapolis by Sept. 25th, 1935. Prizes will be awarded for drawings best in proportion and neatness by Federal Schools Faculty.

FEDERAL SCHOOLS INC

Dept. 10315 Federal Schools Bldg., Minneapolis, Minn.

Learn ELECTRICITY

SEND TODAY FOR DETAILS OF MY

Pay-Tuition-after-Graduation Plan!

Get training in 90 days, right here in the great Coyne Shops — **not by correspondence** — but on real electrical machinery. **Mail the coupon below.** If you are short of money I'll send you all details of my finance plan and consider your application. If accepted, you won't have to start paying tuition back until **five months from the date you start school**, and then you'll have **over a year** to complete your payments.



STUDENTS BUSY AT WORK IN GREAT COYNE SHOPS

Tremendous Developments Ahead in Electricity!

HERE is YOUR opportunity to cash in. Every day brings news of new developments in every branch of Electricity, with more opportunities, more jobs, and a greater future for the trained man than ever before. I consider the fellow who is ambitious enough to want to get ahead by taking my Training, worthy of my help. **MAIL THE COUPON BELOW** and you can prove to me that you are willing to spend just **THREE MONTHS** in the Coyne Training Shops Learning **ELECTRICITY**. Then, I'll tell you about my finance plan, which has enabled many to get complete Training and pay tuition back later.

Learn By Doing In 90 Days

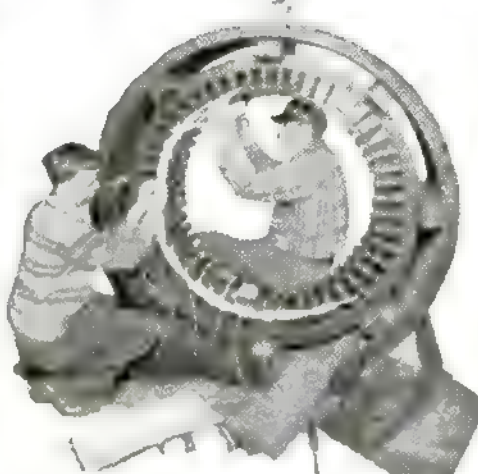
Lack of experience or advanced education bars no one. I don't care if you don't know an armature from an air brake—I don't expect you to! It makes no difference! Don't let lack of money hold you back from getting all details of my amazing plan.

MANY EARN While LEARNING

If you need part-time work to help pay your living expenses and will tell us your problems we may be able to help you as we have thousands of others. Then in 12 brief weeks, in the great roaring shops of Coyne, we train you as you never dreamed you could be trained... on one of the greatest outlays of electrical apparatus ever assembled... real dynamos, engines, power plants, auto, switch-boards, transmitting stations... everything from doorbells to farm power and lighting... full-sized... in full operation every day!

TRAINING By Actual Work

No dull books... you get individual training... real actual work with only the theory you will need. Building real batteries... winding real arma-



Prepare for Jobs Like These
Here are a few of hundreds of positions in the electrical field. Our free employment bureau gives you a lifetime employment service.
**ARMATURE EXPERT
SUBSTATION OPERATOR
AUTO ELECTRICIAN
INVENTOR
MAINTENANCE ENGINEER
SERVICE STATION OWNER
RADIO EXPERT**



Home of Coyne School

This is our fireproof modern home wherein is installed thousands of dollars' worth of Electrical equipment of all kinds. Every comfort and convenience has been arranged to make you happy and contented during your training.

tures, operating real motors, dynamos and generators, wiring houses, etc. That's a glimpse of how we help to make you a master electrician, and fit you to qualify for jobs leading to the biggest pay.

Jobs-Pay-Future

"I owe my Electrical success to your 12 week shop course," says R. B. Umbarger of Tennessee. "Two weeks after leaving school I took a wiring job," reports E. O. Berndt of Illinois, "and the profits from this one job alone more than paid for the entire course." A. C. Hoehnle of Ohio says "Received several raises in pay, due to the training I received at Coyne." And I could quote from hundreds of letters of successful Coyne Trained Men. *What they have done, you should be able to do!*

Electric Refrigeration — Air Conditioning

Right now I am including my big new Electric Refrigeration and Air Conditioning course at no extra cost.

GET THE FACTS

Coyne is your one great chance to get into electricity. This school is 36 years old—Coyne training is tested—proven beyond all doubt—endorsed by many large electrical concerns. You can find out everything absolutely free. Simply mail the coupon and let me send you the big, free Coyne book with photographs... facts... jobs... salaries... opportunities. Tells you how many earn expenses while training and how we assist our graduates in the field. This does not obligate you. So act at once. Just mail coupon.

Get This
FREE
Book



H. C. LEWIS, President
Coyne Electrical School, Dept. 75-72
500 S. Paulina St., Chicago, Ill.

Dear Mr. Lewis:—Without obligation send me your big free illustrated catalog, with all facts about Coyne Training and details of your "Pay-Tuition-After-Graduation" Plan.

Name..... Age.....

Address.....

City..... State.....

COYNE **ELECTRICAL SCHOOL**
H. C. LEWIS, PRESIDENT FOUNDED 1899
500 S. Paulina St., Dept. 75-72, Chicago, Ill.

When writing to advertisers please mention Popular Mechanics



Follow this Man

Secret Service Operator 38 is on the job

FOLLOW him through all the excitement of his chase of the counterfeit gang. See how a crafty operator works. Telltale finger prints on the lamp stand in the murdered girl's room! The detective's cigarette case is handled by the unsuspecting gangster, and a great mystery is solved. Better than fiction. It's true, every word of it. No obligation. Just send the coupon and get—

FREE!

The Confidential Reports No. 38 Made to His Chief

And the best part of it all is this—it may open your eyes to the great opportunity for YOU as a well paid Finger Print Expert. This is a young, *fast-growing* profession. This school has taken men and trained them for high official positions. This is the kind of work you would like. Days full of excitement. A regular monthly salary. Rewards.

Can you meet this test?

Are you of average intelligence? Are you ambitious? Would you give 30 minutes a day of your spare time preparing yourself for this profession? Answer "yes" and I'll show you how it is possible for you to attain all this. Send the coupon and I'll also send the Free Reports.

INSTITUTE OF APPLIED SCIENCE

1920 Sunnyside Ave., Dept. 13-57 Chicago, Illinois

Institute of Applied Science

1920 Sunnyside Ave., Dept. 13-57 Chicago, Illinois

Gentlemen:—Without any obligation whatever, send me the Reports of Operator No. 38, also your illustrated Free Book on Finger Prints and your low prices and Easy Terms Offer. Literature will NOT be sent to boys under 17 years of age.

Name

Address

Age

When writing please mention Popular Mechanics

BETTER JOBS NOW DRAFTING



These TOOLS and Other EQUIPMENT Given When You Start

Boost your pay! Get a better job. As business picks up draftsmen are the *first* needed! I furnish you all tools and a drawing table. And I'll teach you in a very short time by mail in your spare time until you actually have a desirable draftsman's position so that you are fully satisfied with your easy work and better pay. No previous experience required. High School education not needed. Everything made plain by my practical method *right from the start*.

FOR MORE PAY—Learn at Home

Opportunities opening up in auto work, aviation, electricity, machinery, and certain building lines. You'll be amazed how quickly you can prepare yourself in your spare time for MORE PAY by my practical method—now used for over 34 years. Thousands of successful graduates, aged 16 and 18 to past 50. Write TODAY for

FREE BOOK "Success in Draftsmanship"

This book explains my "Pay-Raising Plan." NOW is the time to prepare for that job. Write today. (No obligations). **ENGINEER DOBE, Div. 33-77, LIBERTYVILLE, ILL.**



"BECOME A LIGHTNING TRICK CARTOONIST"

Send \$1.00 for Laugh Producing Program of 23 Trick Drawings with Instructions. Catalog of Chalk Talk Supplies Free. **BALDA ART SERVICE, Dept. 1, Oshkosh, Wis.**

WORK FOR THE



GOVERNMENT

START

\$1260 to \$2100 YEAR

MEN—WOMEN

Railway Postal Clerks
File Clerks
Postoffice Clerks—Carriers
Customs Inspectors

GET READY IMMEDIATELY

Common Education Usually Sufficient

Mail Coupon

Today—SURE

Franklin Institute
Dept. B174
ROCHESTER, N. Y.

Gentlemen: Rush to me, FREE of charge, list of U. S. Government big pay jobs. Send FREE 32-page book describing salaries, vacations, hours, work. Tell me what to do to get one of these jobs.

Name

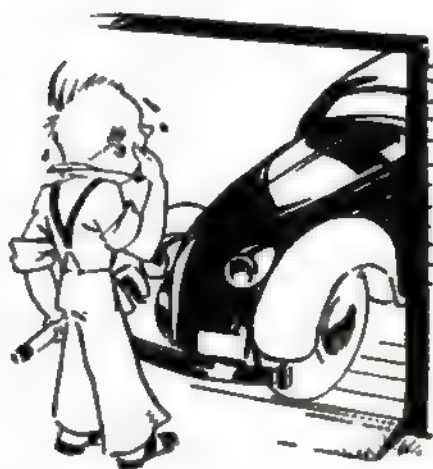
Address



The Editor's MAIL BAG

Old Cars Better?

"I don't believe modern automobiles are as good cars as those of several years ago.



and I have to take it to the garage a lot. I wonder how many others have had this experience?"—*Jerry Gilligan, Chicago, Ill.*

Now, I had a 1924 model that I ran close to 100,000 miles with very little repairing. But, the 1934 model (of the same make), for which I traded after running the other car ten years, gives me trouble

A Powerful Model



Romolo Leon with His Model Locomotive

"Enclosed is photo of the scale model Pacific type passenger locomotive that I built in three and one-fourth years. It runs at 105 pounds steam pressure and will haul two tons. I did all the work, including the making of all patterns."—*Romolo Leon, Los Angeles, Calif.*

Perpetual Motion?

"Have you any information which either verifies the claim of perpetuity of motion with a mechanical device, or proves its impossibility by such means? I venture to

say that this letter is only one of many others you have received, for to 'perpetual motion' attaches a lure unique in mechanical lore."—*R. Fischer, Sacramento, Calif.*

For the Whole Family

"For nearly twenty years Popular Mechanics has been our regular magazine and during that time, the pleasure and valuable information obtained from it are almost indescribable. Keeping house without Popular Mechanics would not seem fully complete in our family."—*Mrs. Christine Bystrom, Campello, Mass.*



say that this letter is only one of many others you have received, for to 'perpetual motion' attaches a lure unique in mechanical lore."—*R. Fischer, Sacramento, Calif.*

Wants Formulas

"I would like more chemical formulas and processes for everyday household use. I bought my first Popular Mechanics in 1910 and am a regular reader."—*Carl Richter, Newark, N. J.*

Money-Saving Ideas

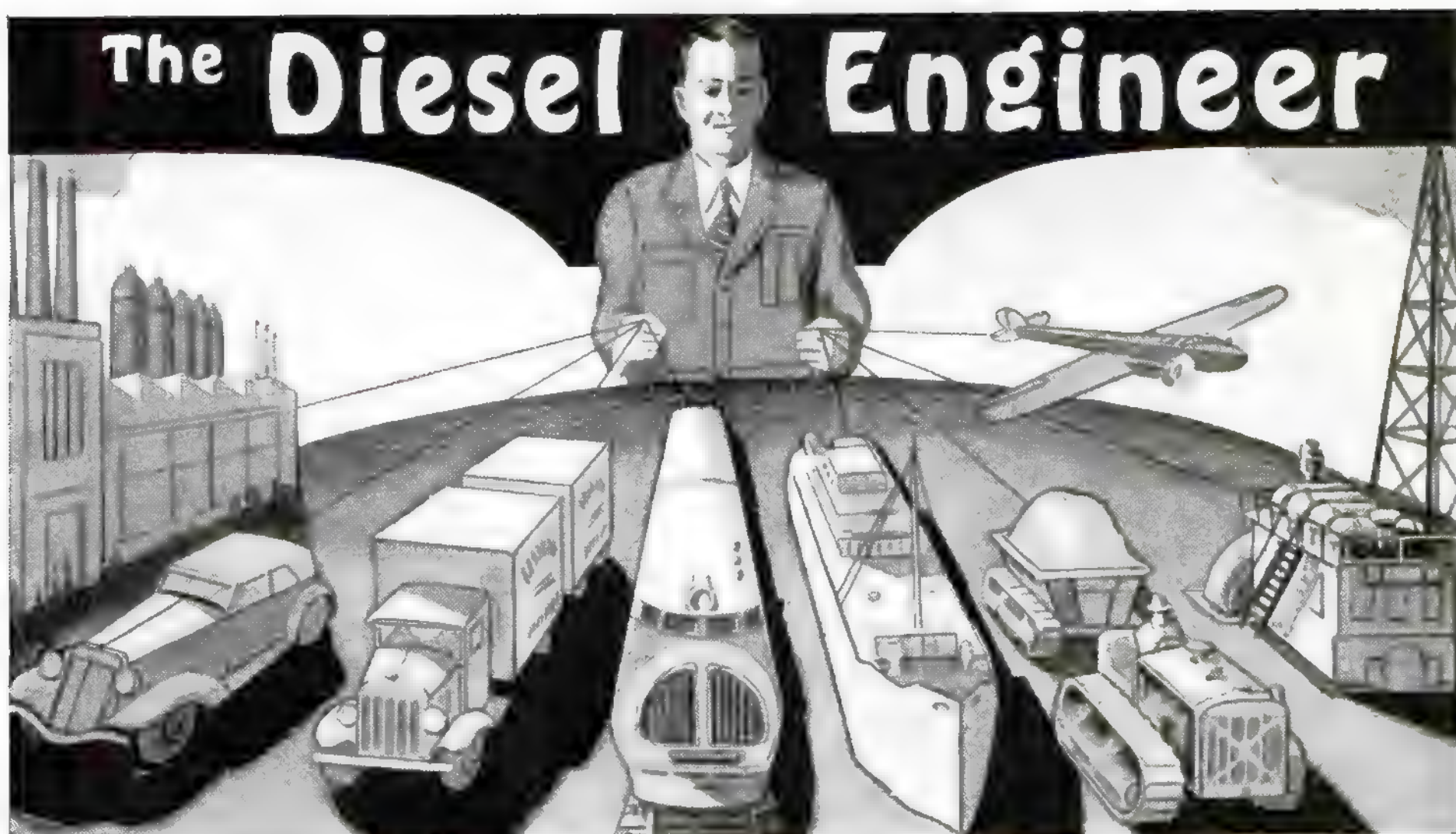
"Your magazine not only is a source of genuine entertainment, but from it I have obtained many labor and money-saving ideas."—*J. M. Hughes, Freehold, N. J.*

Pulls in EAQ



"I have built the two-tube S.W. receiver described in the January issue of 1934. It brings in the U. S. and Canadian stations very clearly and I have heard several South American and European sta-

(Continued to page 22A)



Not since the Gasoline Engine was perfected for use in automobiles and trucks 30 years ago, has there been such a sweeping change in the power and transportation fields as the Diesel Engine is now bringing about.

Think of the Opportunity for You

Diesel engines—because of their high efficiency, dependability, and economy of operation—are fast replacing steam and gasoline engines on land and water, and in the air—threatening the present jobs of thousands of workers. **Is your job safe?**

Power for Manufacturing and Construction Work—All over the country, Diesel stationary plants are providing shops and factories with low cost electric light and power—producing power and light for public utility companies, municipalities, railroads, city street car and interurban systems—drilling oil wells and pumping the oil to markets a thousand miles away—operating dredges and excavating machinery in river improvement and reclamation work—furnishing dependable and economical power on isolated construction jobs.

Steady Employment

To be sure of steady employment in any line, you must understand the principles and operations of that line. The Diesel industry has made amazing progress during the last 3 years—in 1934 the horsepower sold was more than double that sold in 1933. And every new Diesel installed means more jobs—greater opportunities—for Diesel-trained men. If jobs in your line are steadily growing scarcer, investigate this new, progressive, uncrowded line, that is offering an increasing number of good openings.

Today there is practically no competition in the Diesel field, but the increasing use of Diesel engines will result in keen competition for jobs after a few years. If you start your training now and get established in this field, you need not worry about competition.

Get your Free Diesel Booklet and find out what the Diesel field offers you—how quickly you can obtain a complete understanding of Diesel engine principles and operation by spare-time study at home. Course includes all text material—with special diagrams making it easy to understand this new type of power.

Power for Transportation—Diesel engines are producing the electric power that enables the “Zephyr,” “M 10,000,” and “Flying Yankee” to break railroad records for both speed and economy of operation—driving ocean liners and freighters, ferry boats and tugs, lake and river boats, barges and pleasure craft—operating huge motor trucks on long and difficult hauls, and busses on city streets and transcontinental highways—powering tractors hauling all kinds of equipment on farms and construction jobs, and in lumber camps—driving giant airplanes and racing automobiles.

American School, Drexel at 58th St., Chicago

Engineering and Business

If you are interested in some other Engineering line—or in the field of Business—we can give you equally complete, simplified, and practical training service for any of the desirable positions listed below.

Asking for information involves no obligation—but mailing the coupon may mark the turning point in your life. Check and mail the coupon today.

American School

Dept. D-745, Drexel at 58th St., Chicago

Send me, without obligation, full information on position checked.

☐ Diesel Engineer

- | | |
|--|---|
| ☐ Air Conditioning Engineer | ☐ Draftsman & Designer |
| ☐ Aircraft Pilot | ☐ Electrical Engineer |
| ☐ Architect & Builder | ☐ High School Graduate |
| ☐ Automobile Engineer | ☐ Lawyer |
| ☐ Bookkeeper & Accountant | ☐ Mechanical Engineer |
| ☐ Business Law | ☐ Radio & Television |
| ☐ Business Manager | ☐ Refrigerating Engineer |
| ☐ Cert. Public Accountant | ☐ Steam Engineer |
| ☐ Civil Engineer | ☐ Structural Engineer |

Name.....Age.....

Address.....

Turn Your Spare Time into Dollars

When writing to advertisers please mention Popular Mechanics



KNOWLEDGE is POWER!

HEMPHILL TRAINING — a firm foundation for SUCCESS in the DIESEL Industry



HEMPHILL DIESEL SCHOOLS



New York Schools
31-26 Queens Blvd.
Long Island City,
New York



Chicago Schools
2014 Larrabee Street
(Former Address,
1253 Diversey Parkway)



Los Angeles Schools
2120 San Fernando Rd.



Seattle Schools
501 Westlake North



Detroit Schools
2341 W. Lafayette Blvd.

Also Schools at 1363 Granville St., Vancouver, B. C.

● Why envy the man who makes a success in life? Start NOW to fit yourself to assume the responsibilities that bring SUCCESS! DIESEL installation, operation, maintenance, and sales offer great opportunities for trained DIESEL men.

A HEMPILL GRADUATE is operating engineer of America's largest and finest DIESEL municipal power and light plant at Vernon, California.

Willard O. Tatman, shown at left, learned DIESELS by HEMPILL'S thorough and exclusive methods, and rose to commanding position in the DIESEL industry.

HEMPILL graduates occupy many of America's outstanding DIESEL positions because HEMPILL training lays a firm foundation in all the essentials that will fit YOU for the real jobs in the DIESEL industry.

The DIESEL industry is today where the automobile industry was in 1912. DO SOMETHING NOW TO INSURE YOUR FUTURE! Mail the handy coupon for complete details about HEMPILL'S Day, Night and Combination Home-Study Courses. If Coupon has been removed, write your nearest HEMPILL Schools.



At right—the five huge M.A.N. type DIESEL engines at the Vernon, Calif. plant, with total of 35,000 horsepower. Many HEMPILL Graduates are occupying important Diesel positions throughout the United States and foreign countries.



MAIL COUPON TODAY

Hemphill Diesel Schools, Dept. PM (use nearest address shown above): I would like to have, without any obligation, full information about your Diesel training courses and a copy of "Diesel News."

Name _____

Street Address _____

City _____ State _____

AMERICA'S ORIGINAL EXCLUSIVE DIESEL TRAINING SCHOOLS

When writing to advertisers please mention Popular Mechanics



Say Fred, be sure to get this Taxidermy book. You will surely be interested. It's now sent free.

LEARN TO MOUNT BIRDS AT HOME & ANIMALS—BE A TAXIDERMIST



Amazing Pleasure and Profits in This Art

YOU LEARN IT EASILY, QUICKLY, BY MAIL IN SPARE TIME

Men, boys, women,—Study Taxidermy. Taught by Experts.
ALL SECRETS revealed. It will amaze and delight you.

Hunters — Fisherman

Save your game trophies. They are **Valuable**. Mount them for home and den. Have a **Museum**. Win fame as a Taxidermist. Make undreamed-of money in spare time . . . You learn to mount (stuff) **expertly**, **Birds, Animals, Fish, Game-Heads**, just like life. That is Taxidermy. You can be a Taxidermist. Will you? Surely you are interested. Mail Coupon right now for the astonishing **Free Book**.

Success Guaranteed

This old reliable school in 30 years has graduated 200,000 students; all in Taxidermy **Only**. Ask our 200,000 graduates! They **Know** we can teach you successfully. Our great success permits this **Guarantee**. Grasp this **Opportunity**—send coupon right now, **TODAY**, for the **Free Book**.

Mail Coupon

Or a postcard will do. No obligation on your part. The beautiful **Book**, with hundreds of entrancing **Pictures** is **Free**. Do not miss this wonderful opportunity to obtain the marvelous and valuable book, **FREE** and **POST-PAID**. Write today. State your **Age**.

Wild Game Not Needed

You can use common animals and birds; squirrels, rabbits, little chicks, puppies, kittens, pigeons, even frogs. Mount them in human and humorous groups. **Real Fun**; and profitable, too. This is known as **Craft and Novelty** taxidermy; it's included in our unique lessons. It's **Marvelous**. Write the school this minute!

Big Profits in Spare Time

Many students earn from \$40 to \$75 monthly in spare time. Some earn thousands of dollars each year. Sportsmen bring their trophies to be mounted. Besides you can sell your own **Novelty** groups for homes, dens and for merchants' window display.

Learn Tanning

Tan fine harness, sole and chrome leathers; also furs with the hair on. **Expert Methods**, easily learned. **Save Money** making your own leathers; **Make Money** tanning for others. **Quick Sure Profits**. The **Free Book** tells about it. Send coupon.

FREE BOOK

Northwestern School of Taxidermy, 3377 Elwood Bldg., Omaha, Neb. Send me your free illustrated book, "How to Mount Game." Also tell me how I may learn this fascinating art easily and quickly by mail. No obligation.

Name _____ Age _____
Address _____

NORTHWESTERN SCHOOL OF TAXIDERMISTRY
3377 Elwood Bldg., Omaha, Neb.

When writing to advertisers please mention Popular Mechanics

TAXIDERMIST — SEND COUPON TODAY FOR WONDERFUL FREE BOOK

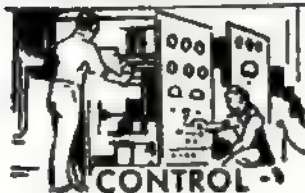


TELEVISION

has arrived

**AMERICA'S
First Complete
TRAINING
COURSE
—now ready**

Students operate
actual equipment in
NATIONAL STUDIOS



**LEARN
TELEVISION
ELECTRICITY
RADIO** *all branches*

Actual Television Equipment

The newest radio science and profession—TELEVISION—has arrived. National has pioneered Television instruction. Easy-to-learn, practical Television.

vision training is part of our complete Radio and Electrical course. You actually operate genuine Television equipment. Learn this fascinating profession and be qualified for good jobs in this rapidly growing field.

RADIO ENGINEERING, BROADCASTING

Our complete Television, Radio and Electricity courses offer training in all these branches. Radio instruction includes construction, operation and repair of all types of radios, radio station operation, marine and airplane operation, etc. We maintain our own complete modern broadcasting studios in which you operate actual broadcasting and receiving equipment.

ELECTRICAL, TALKING PICTURE TRAINING

All students receive complete instruction in all fundamental branches of Electricity as well as National's special course, given without extra charge, in talking picture training. You learn the operation and servicing of talking picture equipment used in motion picture studios and theatres.

Qualify for These Jobs in Los Angeles

National's thorough training qualifies you for many positions in these fields that require trained experts. With limited finances you can enroll. Los Angeles, the ideal city in which to train, is the center of the greatest activity in radio, television, talking pictures and electricity.

EARN ROOM AND BOARD

The majority of students earn living expenses while learning. You can enroll regardless of age or education. We assist you in obtaining part-time jobs.

RAILROAD FARE ALLOWED

For a limited time, your coach railroad fare from any part of U. S. to Los Angeles will be allowed.

SEND COUPON RIGHT NOW

Send the coupon today for big FREE illustrated book telling you about the great opportunities awaiting you in Television, Radio and Electricity and acquainting you with this million-dollar school.

NATIONAL SCHOOLS

**Oldest, Largest Trade School in West
Est. 1905 30,000 graduates**

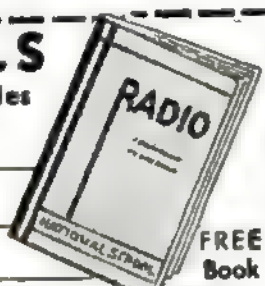
NATIONAL SCHOOLS

Dept. 10-PMR, 4000 So. Figueroa St., Los Angeles
Send free Catalog.

NAME _____

ADDRESS _____

CITY _____ STATE _____



When writing please mention Popular Mechanics

AMATEUR CHEMISTS-SCIENTISTS!



Every issue of the Home Laboratory Journal contains loads of experiments and spicy scientific news, queries department, facts on chemical science, helpful laboratory suggestions, formulas, humor, etc. Adds real pleasure to working out your chemical problems and experiments. Send for special six months' subscription at 25c for limited time only. You will receive your first copy by return mail.

**THE CHICAGO PRESS, Dept. 403
158 Carroll Avenue Chicago, Illinois**

VOICE

100% Improvement Guaranteed

We build, strengthen the vocal organs—not with singing lessons—but by fundamentally sound and scientifically correct silent exercises... and absolutely guarantee to improve any singing or speaking voice at least 100%... Write for wonderful voice book—sent free. Learn WHY you can now have the voice you want. No literature sent to anyone under 17 years unless signed by parent.

**PERFECT VOICE INSTITUTE, Studio 13-57
64 E. Lake St., Chicago**

STICK 'EM UP!

Regardless of strength or size defend yourself and friends against any foul attack, from bullies or by gun, knife or club. Subdue with ease persons much stronger than yourself. A complete course on approved American Police Jiu-Jitsu by internationally known police instructor. 151 illustrations with detailed instructions pocket size. 13 knockout blows without using fists. Send One Dollar Full price, or C. O. D.

**S. J. JORGENSEN
786 Maritime Building Seattle, Washington**

JOBS FOR THOUSANDS



are opening in the live fields of **Air Conditioning, Drafting, Electricity, Housing, Engineering, Radio.** Don't delay. Start training now at this accredited 32 yr. old college. B. S. Degree or shorter courses. 80-Page Blue Book tells about opportunities.

**CHICAGO TECHNICAL COLLEGE
N78 Tech Bldg., 118 East 26th St., Chicago, Ill.**

Come to WASHINGTON



Train for a Fine Hotel Position
Graduates earning substantial salaries
Good positions for trained men in hotel, restaurant and institutional field. Qualify in 4 months—learn on real hotel equipment. Placement Service FREE of extra charge. New day classes start Oct., Jan., Feb. Catalog FREE!
**LEWIS HOTEL TRAINING SCHOOLS
Division RLS-398 Washington, D. C.**

LEARN WATCHMAKING AND ENGRAVING



**BY OUR PROFIT-SHARING PLAN
OUR GRADUATES SUCCEED**

One of our Iowa students started in a very small way—now doing over \$30,000 a year. Another in Wisconsin, over \$10,000 the first year. Day or night classes. Call or write for FREE BOOK.
Chicago School of Watchmaking, Dept. 3201, 155 N. Clark St., CHICAGO.

LEARN CARTOONING

by the method that has developed hundreds successfully. Send name, address and age for free chart to test your ability.

The Landon School, 1738 National Bldg., Cleveland, Ohio

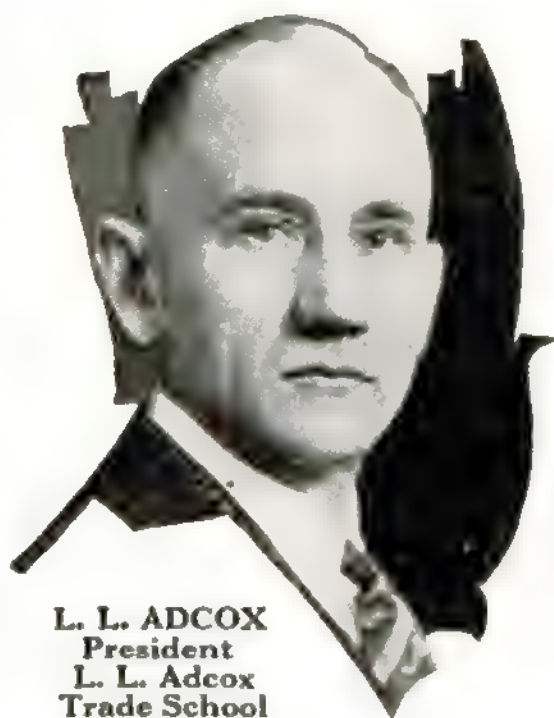
5¢ LITTLE BLUE BOOKS

5¢ EACH

Send postcard for our free catalogue. Thousands of Bargains. Address: **LITTLE BLUE BOOK CO., Catalogue Dept., Desk 493, Girard, Kansas.**

Learn PHOTOGRAPHY at Home

Make money taking pictures. Photographs in big demand. Commercial Photography also pays big money. Learn quickly at home in spare time. No experience necessary. Write today for new free book, *Opportunities in Modern Photography.* **American School of Photography, Dept. 1357, 3601 Michigan Avenue, Chicago.**



L. L. ADCOX
President
L. L. Adcox
Trade School

I'll help YOU get a big-pay job in DIESEL

I think I know you. Impossible, you say? Well, I don't know the color of your eyes or how much you weigh or even your age (it might be anywhere from 15 to 50). But I do know something lots more important about you. I know what has been going on in your mind for the last few years.

You've been doing some tall thinking. You made up your mind some time ago that never, NEVER again would you and those you hold dear to you suffer through another depression like this last one. You determined to have a good job next time. And money in the bank.

You haven't started yet—WHY?

I'll tell you that, too. You don't know for sure just what line to get into. And perhaps you feel you haven't quite enough money to finance your start. Listen to me a minute. I have been helping fellows into big pay jobs with success, independence and happiness assured, for the past 26 years. Now I am giving my boys and men complete courses in Diesel Engineering, making the highest type of Diesel Experts out of them. You know without me telling you, how the Diesel industry has been making its greatest progress during the depression—that it has been revolutionizing scores of other industries and now stands on the threshold of an amazing development. Diesel Experts certainly will be sitting on top of the world.

I'll help you get into this line—RIGHT

I'll give you the finest course in Diesel Engineering that money can buy, at a price that makes it the most profitable investment a fellow can make. Please don't feel that because the opportunities are almost endless in Diesel that you can get along with a cheap smattering of Diesel knowledge. Diesel wants men who *know how* and is willing to pay handsomely. If you are the clear headed fellow I think you are you'll want the SUPERIOR TRAINING

my school can give you. You will be mightily interested in my 26-year-old reputation for making a high percentage of successes out of my graduates—you'll be interested in the fact that there is no better equipped

Diesel school in the country—and in the fact that if you elect to come to the Adcox School I will help you finance your training period if you wish by helping you get a part time job to pay your room and board. I will help you all through your schooling backed by the friendliest, most capable staff you ever met.

Then I'll help you get that job!

You will study in the Pacific Northwest, a "hot spot" of Diesel activity and a most important center of Diesel employment. You will study right alongside the kind of job you want whether it's tractors,

trains, trucks, Diesel driven tugs, fishing boats, freighters and ocean liners or any other of the endless uses of Diesel. You'll like the matchless climate of the Pacific Northwest. You'll enjoy the outdoor recreations for which this part of the country is famous.

Decide NOW to get into DIESEL

Read *How to Choose a Diesel School* in my new valuable Diesel Book No. 18B. Write today for your FREE copy and make up your mind to start on a career of financial success, independence and happiness. Use this Coupon NOW.

\$300.00 JOBS



Jerry Palmer

Jerry wrote me recently: "My investment in time and money in the L. L. Adcox Trade School was returned to me in the first three months after my graduation. My position as Chief Diesel Engineer pays me \$300.00 per month."

DIESEL SCHOOL CATALOG FREE

MR. L. L. ADCOX, President,
L. L. ADCOX TRADE SCHOOL,
237 N. E. Broadway, Portland, Ore.

Without obligation please send FREE Diesel Book No. 18B.

Name.....

Address.....

Town.....State.....







Do You Make these Mistakes in ENGLISH?

Sherwin Cody's remarkable invention has enabled more than 90,000 people to correct their mistakes in English. Only 15 minutes a day required to improve your speech and writing.

MANY persons say, "Did you hear from him today?" They should say, "Have you heard from him today?" Some spell "calendar" "calender" or "calander." Still others say "between you and I" instead of "between you and me." It is astonishing how often "who" is used for "whom," and how frequently the simplest words are mispronounced. Few know whether to spell certain words with one or two "o's," or "m's" or "r's" or with "ie" or "ei." Most persons use only common words—colorless, flat, ordinary. Their speech and their letters are lifeless, monotonous, humdrum.



SHERWIN CODY

Every time they talk or write they show themselves lacking in the essential points of English.

Wonderful New Invention

For many years Mr. Cody studied the problem of creating instinctive habits of using good English. After countless experiments he finally invented a simple method by which you can acquire a better command of the English language in only 15 minutes a day. Now you can stop making the mistakes which have been hurting you. Mr. Cody's students have secured more improvement in five weeks than previously had been obtained by other pupils in two years!

Learn by Habit—Not by Rules

Under old methods rules are memorized, but correct habits are not formed. Finally the rules themselves are forgotten. The new Sherwin Cody method provides for the formation of correct habits by calling to your attention constantly only the mistakes you yourself make.

One of the wonderful things about Mr. Cody's course is the speed with which these habit-forming practice drills can be carried out. You can write the answers to fifty questions in 15 minutes and correct your work in 5 minutes more. The drudgery and work of copying have been ended by Mr. Cody! You concentrate always on your own mistakes until it becomes "second nature" to speak and write correctly.

FREE—Book on English

A new book explaining Mr. Cody's remarkable method is ready. If you are ever embarrassed by mistakes in grammar, spelling, punctuation, pronunciation, or if you can not instantly command the exact words with which to express your ideas, this new free book, "How You Can Master Good English in 15 Minutes a Day," will prove a revelation to you. Send the coupon or a letter or postal card for it now. SHERWIN CODY SCHOOL OF ENGLISH, 510 Searle Building, Rochester, N. Y.

SHERWIN CODY SCHOOL OF ENGLISH
510 Searle Building, Rochester, N. Y.

Please send me, without any obligation on my part, your new free book "How You Can Master Good English in 15 Minutes a Day."

Name.....

Address.....

.....
This valuable book can not be sent to children

When writing please mention Popular Mechanics

Supplies Everything You Need

FOR **Taxidermy**



JONAS BROS. originated and developed many of the methods, materials and supplies now considered indispensable for realizing the highest degree of artistic skill in Taxidermy.

EYES, FORMS, TEETH, TOOLS, ACCESSORIES

... everything you need to mount ANY bird or animal—from a Humming Bird to an Elephant! Big new catalog gives complete, detailed descriptions, pictures and prices of EVERYTHING for the progressive, amateur or professional taxidermist. It's FREE—write for YOURS today!

JONAS BROS.
1049 Broadway, Denver, Colo.

ENGINEERING DEGREE IN TWO YEARS

B.S. Degree in Electrical, Civil, Chemical, Radio, Mechanical or Aeronautical Engineering in two years. Located in an industrial center with that Engineering atmosphere. Earn board. Low tuition. Preparatory Department. Enter Sept., Dec., March, June. Catalog.

INDIANA TECHNICAL COLLEGE

229 East Washington St., Fort Wayne, Indiana

Be a DENTICIAN



Learn at home to make Crowns, Plates, Bridgework, etc., for Dentists. Easy, practical way to learn mechanical dentistry at home in spare time. Full equipment of tools and materials included with course FREE. Low tuition. Easy terms. Write for FREE BOOK about this money-making profession that is not affected by "machine age."

McCARIE SCHOOL OF MECHANICAL DENTISTRY
207 N. Broad St., Dept. 702, Philadelphia, Pa.

RADIO ENGINEERING

RCA Institutes offers an intensive course of high standard embracing all phases of Radio. Practical training with modern equipment at New York and Chicago schools. Also specialized courses and Home Study Courses under "No obligation" plan. Illustrated Catalog on request



RCA INSTITUTES, Inc. Dept. RC-35
75 Varick Street, New York, N. Y.
1154 Merchandise Mart, Chicago

Recognized Standard in Radio Instruction Since 1909

You Can Regain Perfect Speech, if you

STAMMER

Send today for beautifully illustrated book entitled "DON'T STAMMER," which describes the Bogue Unit Method for the scientific correction of stammering and stuttering. Method successfully used at Bogue Institute for 33 years—since 1901. Endorsed by physicians. Full information concerning correction of stammering sent free. No obligation. Benjamin N. Bogue, Dept. 159, Circle Tower, Indianapolis, Indiana.

LEARN THE COLLECTION BUSINESS

HIG EARNINGS. Handle large sums of money. Deduct up to 50% commission in advance. Experience unnecessary. We train you. Write National Adjusters Bureau, Dept. 2005-K Mobile, Ala.



Learn Public Speaking

At home—in spare time—20 minutes a day. Overcome "stage-fright," gain self-confidence, increase your salary, through ability to sway others by effective speech. Write now for free booklet, *How to Work Wonders With Words*.

NORTH AMERICAN INSTITUTE, Dept. 1357
3601 Michigan Avenue, Chicago, Illinois

Lend Me Your Body for 7 Days...

Journal of the	Journal of the	Journal of the	Journal of the
Journal of the	Journal of the	Journal of the	Journal of the

Abstract



Abstract

100

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

1000

100

1000

[illegible][illegible]

100

6 Big AUTO BOOKS

including **DIESEL** Engines

● Just mail the coupon and we'll send you a set of these remarkable auto books, just off the press. Whether you want to qualify as garage owner, auto repair expert or merely wish to know how to keep your own car 100% efficient, look at these books—they are sent to you for free examination. This brand new edition has been prepared by a group of America's foremost automotive engineers and is written so anybody who can read will understand—a veritable gold mine of valuable facts.

Take advantage of this offer now; send in the coupon for FREE examination. You don't pay us a penny, you don't obligate yourself to pay anything unless you decide to keep the books. Just tell us you want to see them and the full set of 6 great volumes, just off the press, will be sent to you. Read them, look them over and prove to your own satisfaction that one fact alone, which you will find in them, may save you an expensive repair, or help you to a better job. Imagine books which are so new that every page is right up to date—wiring diagrams, construction details, service problems—are all right up to the minute. Nowhere else can you get as complete and timely information. Over a million dollars of resources have enabled us to give you the most authoritative books on the subject ever published.

Shipped FREE
FOR EXAMINATION

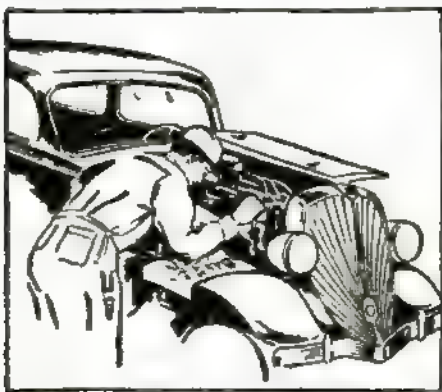


6 BIG VOLUMES bound in gold stamped flexible binding, over 2000 pages, 2000 illustrations—fine paper—extra clear type, and double indexed for instant reference.

Practically Every Auto Fact Included

**DIESEL ENGINES
AVIATION MOTORS
OUTBOARD MOTORS
MOTORCYCLES
TRACTORS**

**WIRING DIAGRAMS
EQUIPMENT CHARTS
SUPERCHARGERS
KNEE ACTION & other up-to-date features all included**



A Better Job

are waiting for any man who even half tries to improve himself. Learn Auto Engineering with these wonder books a new way—without studying or memorizing. Simply use the JIFFY INDEX to look up the answer to any auto problem. Remember over 300 pages on DIESEL the new power.

free [FREE! Privilege of consulting Automobile Engineers of American Technical Society for one year without cost if you mail coupon immediately. Write or wire for answer to any difficult problem, reply will be sent promptly at no cost.]

AMERICAN TECHNICAL SOCIETY

Drexel at 58th St. Dept. A-719 Chicago

SEND NO MONEY

AMERICAN TECHNICAL SOCIETY,
Drexel Ave., at 58th St., Dept. A-719, Chicago, Ill.

I would like to see the new 6-volume edition of your AUTO BOOKS. I will pay the few cents delivery charges only, but if I choose to, I may return them express collect. If after 10 days use I prefer to keep them, I will send you \$2 and pay the balance at the rate of only \$3 a month, until \$24.80 is paid. Please include free consulting membership as per your offer above. Send brand new 1935 edition.

Name _____

Address _____

City _____ State _____

Attach letter stating age, occupation and name and address of employer and at least one business man as reference.

Wrestling Book

Learn at Home **FREE**



Be an expert wrestler. Learn at home by mail. The greatest wrestlers of all, **Frank Gotch** and **Farmer Burns**, both world's champions have prepared the most wonderful course of lessons ever written on Physical Culture and Expert Wrestling. Be strong and healthy! Handle big men with ease. This great free book tells you how. Don't delay. Write now. State your age.

Farmer Burns School, 3377 Elwood Bldg., Omaha, Neb.

New York Electrical School Established 1902
Ask for free booklet
44 West 17th St., N. Y. C.

BUTTER YOUR SOLES

WITH NEW SO-LO PLASTIC RUBBER!

Dries tough over-night! Out-wears leather! Waterproof! Flexible! Non-skid! Guaranteed! Fix auto top, cubs in tires, etc. Take this ad to any Hardware or 10c Store. ASK FOR SO-LO PLASTIC RUBBER.



What Secret Power Did the Ancients Possess?

Are the stories of the great miracles of the past legend or fact? Is it possible that once the forces of nature were at the command of man? Whence came that power? Startling is the revelation that the strange wisdom they possessed has been preserved for centuries and today is available to all who seek a MASTERY OF LIFE.

Send For Free Sealed Book

Those today who have acquired these Cosmic truths find them simple, forceful, and the instrument by which they fashion a new and abundant life. Write the Rosicrucians (not a religious organization), who have carefully guarded these age-old principles, to send you the free Sealed Book which tells how YOU, too, may acquire this personal guidance. (The curious not invited). Address: Scribe N.M.W.

The ROSICRUCIANS
San Jose AMORC California



When writing please mention Popular Mechanics

RADIO

● holds great rewards
for trained men



Almost in a decade radio has become a giant industry. The opportunities created will be enjoyed by trained men. The International Correspondence Schools Radio Course, prepared by leading authorities and constantly revised, will help make you a trained man! A fascinating book—FREE.

ELECTRICAL ENGINEERING

—A Great Industry with a Great Future

The new course in Electrical Engineering covers this fascinating field thoroughly. If you are just starting or are partly on the way to a real paying position in this industry, this new course brings the broader knowledge necessary for advancement. The coupon brings complete information.



MECHANICAL ENGINEERING

—A Field with a Future



This course has meant advancement to hundreds of ambitious men, mechanics, draftsmen, blacksmiths, foundrymen, patternmakers, apprentices, and mechanical engineers—men who wanted to get ahead and to earn more money. You will find, as they have found, that enrolling for an I. C. S. Course is an investment in a Bigger Future. Use the coupon!

AUTOMOBILE EXPERTS

are always in demand

The rapid progress in manufacture and service of the modern automobile brings new opportunities to thousands of ambitious and forward-looking men. There's always a demand for trained men. The new I. C. S. Automobile Course will make you a trained man! The time to act is now. Use the coupon.



INTERNATIONAL CORRESPONDENCE SCHOOLS

BOX 5597-H, SCRANTON, PENNA.

Without obligation, send me full information on subject checked below:

☐ RADIO ☐ AUTOMOBILE COURSE
☐ ELECTRICAL ENGINEERING
☐ MECHANICAL ENGINEERING

☐ Architecture
☐ Concrete Construction
☐ Reading Shop Blueprints
☐ Civil Engineering
☐ Diesel Engines
☐ Gas Engine Operating
☐ Refrigeration
☐ Chemistry
☐ Highway Engineering
☐ Poultry Farming

☐ Drafting ☐ Accounting
☐ Good English
☐ Salesmanship
☐ Advertising
☐ Show Card Lettering
☐ Civil Service
☐ High School Subjects
☐ Air Conditioning
☐ Inventing and Patenting
☐ Aviation Engines

Name _____

Address _____

When writing please mention Popular Mechanics

Amazing Sensational Discovery

REFINISHES AUTOS

LIKE NEW!

NOT A WAX OR POLISH—LASTS 8 to 12 MONTHS—SHABBY CARS GIVEN NEW LUSTER AND SHINE



Men—it's unbelievable, a miracle! KAR-NU refinishes old shabby cars in a few minutes. Gives them like-new shine. Not a polish, wax, or paint, but a real finish that lasts 8 to 12 months. Stands washing, sunshine, long wear. No rubbing—no polishing—no waxing. Just apply with rag. Guaranteed.

FREE SAMPLE

What a profit-maker for agents and distributors! Millions of cars need this new LOW PRICED auto finisher. BIG PROFITS—up to \$7.00 in an hour, easy. Ten second demonstration on any man's car sells him QUICK. Hurry—get FREE SAMPLE which proves all claims. Write or wire to-day. Distributors Wanted in Foreign Countries. KAR-NU CO., Dept. P-30, Oakley, Cincinnati, Ohio

Increase Your Vocabulary

KNOW what to say and HOW to say it—effectively—forcefully. Become a Master of Words—enjoy greater fluency of speech and ease of expression. Release your latent abilities—broaden your opportunities—multiply your word-power—win verbal freedom with WORDOLOGY—The Vocabulary Builder—a simple, easy, fascinating method of word study. Mailed postpaid for only \$2.00. Money back if not satisfied after five days. Send TODAY. Address—

Wordology Associates P. O. Box 82-B, Grand Cent. Sta., New York, N.Y.



TRI-STATE COLLEGE

B. S. Degree in 2 years. World famous for technical 2-year courses in Civil, Electrical, Mechanical, Chemical, Radio, Aeronautical Engineering; Business Administration and Accounting. Equivalent in technical hours to 4-year course. Those who lack high school may make up work. Low tuition. Low living costs. Located in picturesque hill and lake region. Students from every state and many foreign countries. 52nd year. Enter Sept., Jan., March and June. Write for catalog.

4105 COLLEGE AVE.,

ANGOLA, IND.

CARTOON YOUR WAY

TO SUCCESS!



DON'T COPY—LEARN TO ORIGINATE!

RAYE BURNS will teach you HOW to CREATE ORIGINAL CARTOONS at home that you can SELL! Course contains 25 lessons and over 600 illustrations. All for only . . .

\$2.85

Send name and address for free details.

RAYE BURNS SCHOOL, Dept. M-X, BOX 2194, Cleveland, Ohio

Learn ADVERTISING at Home

Greater opportunities now in advertising. Learn easily and quickly in spare time. Practical work. No text books. Old established school. Low tuition—Easy terms. Send for free booklet of interesting information.

Page-Davis School of Advertising
Dept. 1357, 3601 Mich. Ave., Chicago

MAIL FOR FREE INFORMATION

BEDFORD

YMCA

TRADE

SCHOOL

1117 Bedford Ave., Dept. PM-29
Brooklyn, New York City, N. Y.

☐ Auto Mechanic ☐ Talking Pictures
☐ Aviation Mechanic ☐ Welding
☐ Aeronautical Engineering
☐ Refrigeration ☐ Machine Shop
☐ Oil Burner ☐ Commercial Art
☐ Air Conditioning ☐ Sign Painting
☐ Electrical ☐ Window Display
☐ Radio and Television Mechanic
☐ Architectural-Mechanical Drafting
☐ Armature Winding
☐ Diesel Engines

Name

Address

Just as EASY as it looks

to become a popular musician this
delightful, simple as A-B-C way

STOP cheating yourself out of musical good times. Stop thinking that learning music is nothing but one grinding session of monotonous exercises after another . . . days, months and years of difficult technique under the thumb of a private teacher.

Take a look at the above diagram. Looks easy, doesn't it? Well, it's every bit as simple as it looks. First a note, then a letter. Plenty of clear instructions tell you how each bar is played—lots of diagram pictures show you how, then you do it yourself and hear it. Everything to make learning a joy. In fact, the U. S. School of Music has made the reading and playing of music so simple that you don't have to know one note from another to begin.

Your first thrill comes with your very first lesson. For you are given a piece with a real melody to play by *actual notes*. Dreamy waltzes, stirring marches, sparkling sonatas follow in short order. No standing still. You become a capable performer months sooner than you could ever expect to by the old-fashioned way. Besides, you receive all the music you need at *no extra cost*.

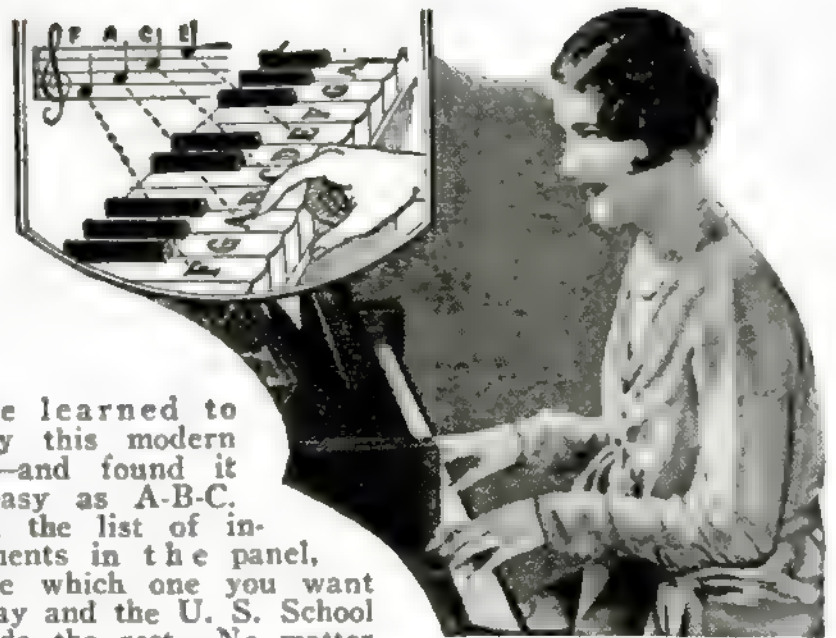
Play the "Blues" Away

How can you be content to sit around at party after party and listen to others do all the playing—see them showered with admiration, invitations—when your life-long ambition to become a popular musician is now so easy to realize? Experience the personal satisfaction that comes from being able to play "when," "where," and "what" you like for your own amusement and the entertainment of others. Don't be afraid to begin your lessons at once. Over 700,000

Learn To Play By Note

Mandolin	Saxophone
Piano	Cello
Organ	Ukulele
Violin	Cornet
Banjo	Trombone

or any other instrument



people learned to play this modern way—and found it as easy as A-B-C.

Read the list of instruments in the panel, decide which one you want to play and the U. S. School will do the rest. No matter which instrument you choose, the cost in each case will average the same—just a few cents a day.

Our fascinating, illustrated Free Book and our Free Demonstration Lesson explain all about the remarkable method. Clip and mail this coupon today, and they will be sent to you at once. No obligation. Instruments supplied when needed, cash or credit. U. S. School of Music, 710 Brunswick Bldg., New York City.

U. S. SCHOOL OF MUSIC, 710 Brunswick Bldg., New York City

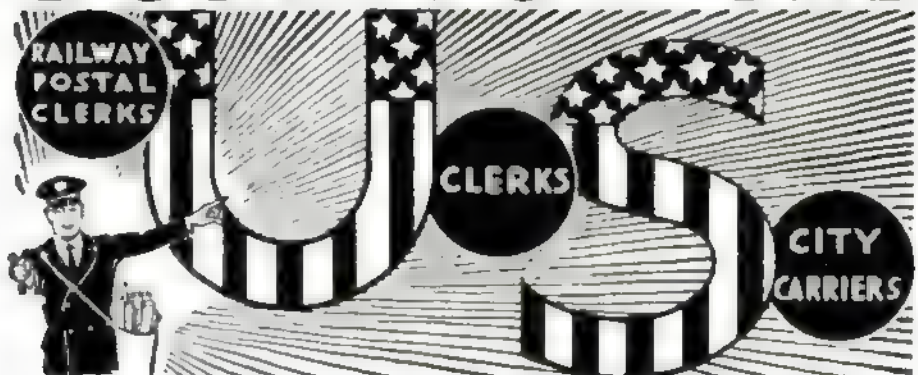
Send me your free book, "How You Can Master Music in Your Own Home," with inspiring message by Dr. Frank Crane; also Free Demonstration Lesson. This does not put me under any obligation.

Name

Address

Instrument

WORK FOR THE



GOVERNMENT START

\$1260 to \$2100 YEAR

MEN—WOMEN

Experience unnecessary.

Common Education
Usually Sufficient

**GET READY
IMMEDIATELY**

**Mail Coupon
Today—
SURE**

Franklin Institute

Dept. B181

ROCHESTER, N. Y.

Gentlemen: Rush to me, FREE of charge, list of U. S. Government big pay jobs. Send FREE 32-page book describing salaries, vacations, hours, work. Tell me what to do to get one of these jobs.

Name

Address

MATHEMATICS

*the key to all
technical success*

made plain in these books

Help your advancement in technical or scientific work. Learn mathematics. Palmer's course makes it easy to master the essentials. Shows how to use them in your daily work. Over 216,000 copies sold.

A Self-Instruction Course for Practical Men

Palmer's simple, step-by-step treatment carries you from first essentials to working knowledge of all mathematical methods. Even makes clear the practical use of calculus. Course based on Palmer's years of trade school teaching; gives thousands of exercises and problems with answers based on every-day questions practical men brought to him for solution.

Study at Home; Pay As You Go

A few minutes a day will give you practical command of this important subject. See entire course without sending a cent in advance. Pay only \$1.00 in 10 days and \$2.00 monthly for three months if you keep the books. If you have ever felt the lack of a working knowledge of practical mathematics, send the coupon at once and look over the Palmer Course.

Palmer's
famous home
study course
available
on easy
terms



Covers:

ARITHMETIC
ALGEBRA
GEOMETRY
TRIGONOMETRY
CALCULUS

with practical
applications

Sent for
Examination
No Money Down
Small Monthly
Payments

McGraw-Hill ON-APPROVAL COUPON

McGraw-Hill Book Co., Inc., 330 W. 42nd St., N. Y. C.

Send me the Palmer Practical Mathematics and Calculus Home Study Course (2 volumes) for 10 days' examination on approval. In 10 days I will send \$1.00, plus few cents postage and delivery, and \$2.00 monthly for 3 months, or return books postpaid. (We pay postage on orders accompanied by remittance of first installment.)

Name

Address

City and State

Position

Company

PM-10-35

When writing to advertisers please mention Popular Mechanics





LINCOLN Training

Qualifies You for a Successful Career in AVIATION

Many of Tomorrow's
BIG PAY Pilots and Mechanics
are Training at LINCOLN Today!



Thousands of new jobs are being created by the tremendous aviation expansion programs throughout the world . . . and the 520 students now training at LINCOLN are getting the finest training to be ready for the big pay jobs. From South America, Central America, Scotland, South Africa, Canada, Alaska, China and from nearly every state in this country have come students to take advantage of Lincoln-training which leads to success. Join them now and let Lincoln train **you** for a romantic, successful aviation career.

These Flight Courses Offered

Whether you want to be a Transport, Limited Commercial, Private or Amateur Pilot, Lincoln trains you for a Government License. High wing and low wing monoplanes, biplanes, cabin planes, etc., are used to assure you complete experience. Complete training includes blind flying by instrument, cross country, night flying, aerobatics, etc.

Modern Equipment—Only modern high class training planes with Department of Commerce approval are used. Both the Flying School and Mechanics School training facilities are among the finest in America.

25 Years of Leadership—Lincoln has been successful as a mechanics' trade school for 25 years; 15 years of success in teaching aviation. Numbered among our graduates are men who have made some of the greatest contributions to the aviation industry.

Greater opportunities for those who start training at Lincoln now! Mail the coupon today for complete facts.

Finest Practical Training for Master Airplane and Engine Mechanics—The kind of actual experience that aviation executives demand—rebuilding Whirlwinds, Wasps, Cyclones, Aircraft Diesels and many other aircraft engines; also rebuilding modern airplanes under factory standards. Training also includes aerial radio, welding, instrument repair. Machine shop practice. Full experience for the good pay jobs offered by airline companies and factories.

Both flight and ground school under Government Supervision.



LINCOLN AIRPLANE & FLYING SCHOOL

209E Aircraft Bldg.,

Lincoln, Nebraska

Lincoln Airplane & Flying School
209E Aircraft Bldg., Lincoln, Nebraska

Please mail me complete information about Lincoln, the World's Best Known Aviation School, and the Big Pay Opportunities of Aviation.

Name.....

Address.....

City.....

State..... Age.....

EARN MONEY with this WONDERFUL NEW INVENTION

BLOW
TORCH
& SOLDERING
IRON IN ONE!

AGENTS! Make quick, steady PROFITS with amazing NEW invention—sells on "flash" demonstration. Main or side line, part or full time. Opens big, new market. **WRITE**—get established for exclusive territory. Hurry! Justrite Mfg. Co., 2061 Southport, Dept. 13-57, Chicago



Forms to cast Lead Soldiers, Indians, Trappers, Hunters, Wild and Farm Animals. 239 different forms to select from. Every form guaranteed to cast perfect figures. Send 5c stamp for illustrated catalogue.

HENRY C. SCHIERCKE Spencer Rd. GHENT, N.Y.



MAKE GLAZED GARDEN POTTERY

Beautiful, colored, glazed concrete pottery made without molds. No experience needed. Use only sand and cement. 2,500 different designs birdbaths, vases, jars, etc. Big profits. Send 10c for Booklet, color plate, etc. NATIONAL POTTERIES CO., 424 Second Ave., So., Room 21 Minneapolis, Minn.

START OWN BUSINESS RESILVERING MIRRORS, REFINISHING METAL, plated articles, auto parts, reflectors, tableware, etc. Experience unnecessary. Small investment for portable home outfit. Write SPRINKLE PLATER, 129A, MARION, INDIANA



AGENTS Make \$380 Monthly

selling 10 CARTER WINDOW WASHERS daily. Cleans, dries, polishes. No mums. Good Housekeeping approval. Restricted territory. Write today.

Carter Products Corp., 998 Front Ave., Cleveland, Ohio



AGENTS 500% Profit GOLD LETTERS

For Store Fronts and Office Windows. Anyone can put them on. Free samples. Liberal Offer to general agents. METALLIC LETTER CO., 438 N. Clark St., Chicago

When writing to advertisers please mention Popular Mechanics

ELECTRICAL BOOKS

shipped
FREE

10
BIG BOOKS

**A·C·RADIO
TELEVISION**

EVERY ELECTRICAL
SUBJECT COVERED

Here's great news for anybody interested in Electricity. BRAND NEW edition of Applied Electricity brought right down to date with every NEW Electrical subject fully covered. 10 big Volumes and all shipped **FREE** for examination.

For Beginners and Experts

Over 3000 pages—hundreds of illustrations—the most complete work of its kind ever published. Dynamos, motors, power stations, radios, television, everything electrical explained clearly so anyone can understand them.

BIG FIELD! Big Demand! Big Pay!

Men who understand electricity are urgently needed right now in thousands of industries. Autos, airplanes, machine shops—practically every industry depends on electricity and men who know this subject make big money. Pleasant, fascinating work, easy to learn and do; learn quickly with these books. Send coupon for a set for FREE examination and see for yourself.

FREE [A year's consulting membership in the American Technical Society now given free to all readers of this famous Encyclopedia of Electricity. Many say, "That's worth more than cost of books."]

AMERICAN TECHNICAL SOCIETY
Dept. E-719, Drexel at 58th St. Chicago

American Technical Society, Dept. E-719, Drexel at 58th St., Chicago
Send for 10 days' free use, BRAND NEW 10 volume set of Electrical Engineering. In return for mailing this coupon promptly, send free, certificate of membership in the American Technical Society entitling me to full consulting privilege for one year. I will pay the few cents delivery charges on the books. If I wish I may return them in 10 days and owe you nothing, but if I keep them I will send \$2.00 after 10 days, then \$3.00 a month until the special price of only \$29.80 is paid.

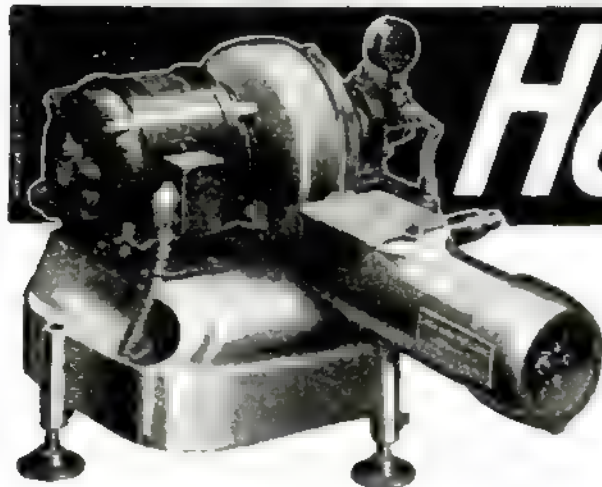
Name.....

Address.....

City..... State.....

Attach letter stating age, occupation and name and address of employer and at least one business man as reference.

Amazing New Low-Cost LACO Oil Burner



Heats for LESS!

Now
\$50 to \$100
Under Others

Saves 25% in Fuel Cost!

LACO'S Low-Cost Automatic oil burners have been the sensation of the industry, for years! Over 50,000 now in use!

Today—LACO offers a sensational new model—one of the world's very finest, most highly-improved—at a saving of \$50 to \$100 over others! Patented fuel-mixing device gets EXTRA HEAT from lowest-priced oils—Cuts Fuel Costs 20% to 30%! Fully Automatic—maintains correct heat, without variation—highly important in homes with old folks and children. Simplified design, fewer parts, reduce service need. New slow-moving fan is remarkably quiet. Built and guaranteed by largest exclusive oilburner manufacturer. Approved by Underwriters' Lab. Fits any furnace. Easy to install. We show you how if there is no LACO dealer at your town.

Beats 4 Others I Had!

"Have used a LACO in my home for 4 years. It's the most satisfactory, economical I ever had. I used 4 others before getting the LACO but they could not compete with LACO for safety, heating and quality." E OBERLANDER, (N. J.)



WRITE Get Free Book, Low Price, Special Offer! Find out for yourself why 50,000 selected LACO. Decide, now, to end the drudgery of lighting fires, shoveling coal and ashes, cleaning furnace dirt. Send for facts and Amazing LOW PRICE!

LACO OIL BURNER CO., 1105 Union St., Griswold, Iowa

DEALERS:

I need more good dealers at once to fill orders and install LACOS. This month, I make this exceptional offer: I'll ship you a Sample Burner—subject to examination—WITHOUT OBLIGATION on your part! I'll give you every possible help. Unusual local-newspaper advertising plan, free folders, hangers, etc. LACO has been nationally advertised for 10 years—known everywhere as America's finest Low-Cost Oil Burner. WRITE FOR OFFER!

L. A. COCKLIN, Pres.

The MACHINISTS' Home-Study Course helps men get ahead

A man can go just so far in machine shop work with only his every-day experience to aid him. The men who get ahead are those who equip themselves with knowledge—who prepare to take advantage of the breaks. Many have done so with these practical books; you can too.

AMERICAN MACHINISTS' LIBRARY

6 volumes—2000 pages—2,500 illustrations

(A combined home-study course and reference library)

This library of machine shop practice was written for practical men. It gives you the best methods for every kind of machine shop work. It explains machine tools and their operation, tool work, gears and grinding, jigs and fixtures, automatic screw machines, their tools, punches, dies, etc. Plainly written—completely illustrated—the best kind of help to the machine-shop man who wants to advance himself.

Free
T
R
I
A
L



No money down—
only 7c
a day

FREE EXAMINATION COUPON

McGRAW-HILL BOOK CO., Inc., 330 W. 42nd St., NEW YORK

Send me for 10 days' free examination the AMERICAN MACHINISTS' LIBRARY. If satisfactory I will send \$1.50 in 10 days and \$2 monthly until the special price of \$17.50 is paid. If not wanted, I will return the books postpaid.

Name.....

Address.....

City and State.....

Position.....

Company..... P. M. 10-35

Play the Hawaiian Guitar like the Hawaiians!

FAMOUS NATIVE HAWAIIAN INSTRUCTORS teach you to play this fascinating instrument. ONLY 4 MOTIONS—No previous musical knowledge needed. OUR 52 EASY LESSONS teach you the enchanting music you hear over the radio.

GIVEN—when you enroll

HAWAIIAN GUITAR, complete

WRITE AT ONCE for attractive offer and easy terms.

playing outfit and carrying case.



FIRST HAWAIIAN CONSERVATORY OF MUSIC, Inc.
9th Floor, Woolworth Bldg. Dept. 250 New York, N. Y.

Approved by New York State Board of Regents

BE AN ARTIST

WE CAN TEACH YOU DRAWING in your own home during your spare time. Thirty-five years of successful teaching proves our ability. Artists receive large salaries.

Write today for Art Year Book
SCHOOL OF APPLIED ART

Dept. 175, 10 E. Huron St., Chicago, Ill.



REAL JOBS OPEN

For Trained Auto Mechanics

Step into Big Pay. Earn \$35 to \$75 a week. I train you in only 8 weeks at largest schools of kind in world. New practical shop plan. Learn with real tools... on real equipment. Write today for Big Free Opportunity Book and Special Low Tuition Offer. Address school nearest you.

McSWEENEY SCHOOLS, Dept. 10-22
Cleveland, O. or Kansas City, Mo.

FREE
BOOK

A CHEMICAL FORMULA FOR EVERY PURPOSE

If you wish to make certain products for your own use or for sale, we can supply you with a practical approved formula for making them. For example: cleaning preparations, cosmetics, tooth pastes, mouth washes, aspirin, salves, extracts, soaps, paints, lacquers, polishes, insecticides, veterinary formulas, beverages, toilet waters... to name only a few.

You can make and sell these or other products at a profit and develop an independent business. Send \$1 for the formula you want. We guarantee to supply it within 30 days or refund your money. Write today—

Universal Chemical Corporation, 176 N. Union, Akron, Ohio



FLYING

1935 JUNIOR AIRCRAFT YEAR BOOK

256 thrilling pages on aviation. A blood-stirring story. 13 Chapters, 150 Photographs, 70 New Airplane Drawings. Official, Complete, Authentic. Brings you up-to-the-minute on this fascinating subject.

Or mail \$2.85 for 2 copies postpaid.

Aeronautical Chamber of Commerce of America, Inc., 30 Rockefeller Plaza, N. Y. (Dept. 6)



CASH FOR YOU

raising PR ROYAL birds. Orders waiting for hundreds of thousands. Easy to raise. You get your money for them when only 25 days old. Particulars and picture book for three-cent stamp. PR Company, 633 Howard St., Melrose, Massachusetts.

RAISE RABBITS FOR US

WE PAY YOU UP TO \$5.00 EACH. ALSO PUT YOU IN TOUCH WITH MARKETS EVERYWHERE. Large illustrated book and catalog, also copy of the AMERICAN RABBIT FARMER and monthly market bulletin showing names of buyers in various parts of America who continuously buy all rabbits offered them. All for 10 cents. Address: OUTDOOR ENTERPRISE CO., 101 Main Street, NEW CITY, N. Y.

When writing please mention Popular Mechanics



**WORLD'S
BEST
WANT AD
MEDIUM**

CLASSIFIED Advertisements



Advertisements in this section, 35 cents per word, each insertion, minimum 10 words, payable in advance. To be inserted under proper classification in November issue, copy should be in our office September 14th. Popular Mechanics Magazine, 200 East Ontario Street, Chicago, Illinois

YOU'LL PROFIT

By reading and answering the classified ads in this section. Hundreds of opportunities to make and save money.

Popular Mechanics Magazine, Chicago.

Gentlemen: Having been in business for more than 20 years, we have done a great deal of advertising in different magazines. Of all the mediums, Popular Mechanics, which we have used for at least 15 years, has given us by far the best returns for money invested. Not only do we receive a great number of replies and orders every month but also we get letters once in a while answering ads that were published in your magazine years ago.

We take this opportunity to thank you for the services rendered and will show our appreciation by using Popular Mechanics in preference to all other magazines.

(Original letter on file in our office)

Yours very truly,
C. SEIDENBERG.

AUTOMOBILES

MIDGET Car, midget motorcycle head-quarters. Full line, parts, plans, motors, wheels, rims, brakes, fenders. Completely illustrated catalog—10c. Bates Midget Motors, 4877 Armitage, Chicago.

SEMI-DIESELIZE Your car correctly to burn Diesel oil. Costs less than \$5.00 to install. Extraordinary performance and economy. Blueprints, instructions, photographs \$1.00. Stamp brings literature. Write today. Earl Behling, Box 944, Los Angeles, Calif.

CHEVROLET Owner, stop that ruinous rattle by installing Spring-Saddle Anti-Rattler. Ask your auto supply house or write for circular. Price 90c. Nic Bredar's Sons Mfg. Co., Rock Island, Ill.

200 MILES 35c. Burn stove distillate in your car. Get parts in any junk yard. Complete detailed information and blueprint 50c (coin). C. C. Carmichael, 5013 2nd Ave., Los Angeles, Calif.

FEELER Gauges—All sizes cheap. Postcard brings free strip. Steel Service, 5641 N. Spaulding, Chicago.

AUTO SUPPLIES—EQUIPMENT

NEW—Auto owners—Quick starting cold or wet. Extra mileage—pep. Easy attached \$1.25. E G Sales Co., 321 Bway, New York City.

AUTO Owners save 75%! Fuel oil conversions \$9.00. Agents wanted, write Desogas Company, 1719 Addison Street, Berkeley, California.

DEMONSTRATORS. Compressor, test bench, 8-hour battery charger—are welder. Guaranteed. Trial and terms. Ken's Equipment Exchange, Box M-1052, Troy, Ohio.

NICKEL Plating outfits, connect to your battery. No tanks used, thousands in use. \$3.00 prepaid. Gunmetal Co., Ave. J, Decatur, Ill.

A. C. GENERATORS

TWENTY New practical changes for automobile generators. See our advertisement at bottom of page 123A. Auto Power, Inc.

AUTO TRAILERS

\$1 VALUE For 50c. Get facts on trailer coach design. This 50-page book can save you 100 times its cost. Order direct from author. Money back if not satisfied. 2c tax in Ohio. Ray F. Kuns, Dept. 117, Madisonville, Cincinnati, O.

REFINISH Your own car. New instruction book treats all phases of painting and refinishing autos and trucks. Written for the man who wants to renew his own car, but covers also the business end of refinishing for the professional. \$1.65 postpaid. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

BOOK Of camp trailer plans containing fifteen modern designs ranging from 8 to 16 feet. Copy sent postpaid for \$1.00. Toellen Coach Company, Box 25, College Park Sta., Detroit, Mich.

MOTORCYCLES, BICYCLES AND SUPPLIES

POWER Your bike with low priced Speed-bike motor. Attach in one hour. Eighty miles to gallon. Thirty miles an hour. Free folder. Guaranteed. Outboard Motor Corp., 4030 N. 28th St., Milwaukee, Wis.

HENDERSON, Indian, Super X and Harley Davidson parts, new and used. Cylinder welding and grinding. Indian Agency, 3661 Archer, Chicago, Ill.

PLEASE Send me free your bicycle price list. Ben Griep, Carthage, Mo.

DE LUXE Bicycle, fully equipped, stainless steel fenders, New Departure coaster, \$28.95; girls \$26.95. Stroop's Bicycles, 19644 Grand River, Detroit, Mich.

SEND Dime for new and used parts bulletin. H-D and other makes. Save up to 90%. Tulsa Motor & Cycle Co., Tulsa, Okla.

DIME Secures sample Speedway Racing Magazine, catalog English motorcycles, crash helmets, speed books, supplies. Clymer, 434 W. Pico, Los Angeles, Calif.

REBUILT Motorcycles. All makes. New and used parts. Expert repair work by factory trained mechanics. We are the authorized Harley-Davidson distributors. Send 10c for bulletin. Western, 914 E. 15th St., Kansas City, Mo.

HENDERSON, Excelsior, Harley, Indian, used parts, alloy pistons, catalogue and wings pin 10c. Ballak, 1115 Chestnut Street, St. Louis, Mo.

MOTORCYCLE Bargains, lowest prices, bargain sheets for stamp. Motorcycle accessories. Rochester Harley Davidson Corp., 129 West Main St., Rochester, N. Y.

SIXTY Reconditioned motorcycles. New and used parts for all makes. Whitman Motorcycle & Supply Co., 405 Southwest Blvd., Kansas City, Mo.

MOTOR Bicycles \$45.00, motorcycles \$40.00, new cord tires \$3.95, used tires, \$2.50. Bicycles \$11.50. (Bicycles for two \$35.00.) Used motorcycle parts, wheels \$1.00. Chains \$1.00. Engines \$10.00 to \$75.00. Frames \$5.00, all parts. Balloon tired wheels for boys automobiles. Send 6c. Price Cutter Deninger, Rochester, N. Y.

SEND 15c For illustrated used motorcycle catalog. New and used parts. Accessories. Largest stock. Indian Motorcycle Sales, Kansas City, Mo.

AVIATION

THE Bennett Plan offers new airplane. No capital necessary. Ideal for flying clubs or pilots wishing to start in business. Write Box 247, Hightstown, N. J.

USED Airplanes \$85 and up. Literature 10c. Continental, Box 344, Dept. 2, Indianapolis, Ind.

TAYLOR "Cub"—America's fastest selling airplane, \$1425. Also used planes. Easy time payments. Folder free. Taylor Aircraft Co., Bradford, Penna.

COMMERCIAL Flying course \$240 complete. Write for details. Bennett Air Service, Hightstown, N. J.

HUNDREDS Airplanes, crackups. Directory 20c postpaid. Aircraft Directory, Athens, Ohio.

AMBITIOUS Young men interested in entering aviation as apprentices see page 30A.

HEATH Monoplane complete \$175.00. Lusk, 4841 Ogden Avenue, Cicero, Illinois.

A BIG Package of model ship and airplane samples. Send 10c for packing and postage. Aero Shop, 3050 Huribut Ave., Detroit, Mich.

GET Into aviation. Air transport pilots get up to \$7,000 per year; mechanics, \$2,500. Learn at this government approved school. Write for complete information. State age. Lincoln Flying School, 2004 Aircraft Building, Lincoln, Nebr.

BATTERIES, GENERATORS, ETC.

EDISON Storage batteries for power and lighting systems. Especially adapted for all make plants. The ideal battery for wind driven generators. Replace your old batteries with Edisons. Rugged construction. Non-acid. No sulphation. Fifteen year life. Five year unconditional notarized guarantees. Complete generating plants. Free illustrated literature. "See Jay Battery Company," 82 Sterling Avenue, Yonkers, New York.

DRY Batteries, signal corp., type 04, 15c each, \$1.00 per doz. Postpaid. Telephone Repair Shop, Rogers Park, Chicago.

WANTED One hundred 32 volt generators. McIntyre's, Swift Current, Saskatchewan.

WESTINGHOUSE Power generators. Output 200 watts, 110 volts a.c., \$8.00 each. National Electric Tool Co., 560 Wash. Blvd., Chicago.

6-32 VOLT Wind electric plants. Kits \$10.00 up. Parts catalog, plans 25c. Currier Mfg. Co., Minneapolis, Minn.

EDISON Storage batteries for all types of lighting systems. Uses no acid. Odorless. Long life. Guaranteed. Generating plants, motor bargains. Free interesting literature. Hawley Smith Company, Croton Falls, New York.

ELECTRIC Lights—Wind driven—You build them. Write Wind Motor Electric, Ridgway, Mont.

ELECTRICAL SUPPLIES—EQUIPMENT

INSULATION, Wire, varnishes, supplies, etc. Send 3c stamp for bulletin. Autopower, 408-B Hoyne Ave., Chicago.

"ELECTRIC Motor Maintenance Guide." Care, trouble tests, and remedies. Price \$1.00. Motor Data Co., 3002 Monroe, Kansas City, Missouri.

ELECTRICAL Experimental laboratory kit—Contains alternating generator, small motor, microphone, transformer, polarized relay, condensers, electroplating chemical, carbons, electro magnets, etc. Contains 25 pieces commercial apparatus, weight 16 pounds. Laboratory makes arc furnaces, secret detectophone, search light, extension telephone, generates electricity, etc. Complete instructions. Educational, fascinating, useful. Original cost \$17.75. Special bargain \$2.79. Other bargains. Stamp for catalog. Electrical Salvage Company, Box 524-AH, Lincoln, Nebraska.

NICHROME Resistance wires, ribbons. Bulletin 3c. Jathrop, 210 Canal, New York.

HOW To make efficient small electric spot welder, hundreds other useful devices in Shop Notes, Vol. 29, only 50 cents postpaid. Popular Mechanics Press, Room C 35, 200 E. Ontario St., Chicago.

WELDING AND SOLDERING

WELDING. Soldering, brazing outfits \$6.00 to \$69.00. Superior Oxy-Acetylene Company, Hamilton, Ohio.

ARCWELDING Course, 28 illustrated lessons, \$1.75. Magazine, dime. Wilson's, Box 706, Sylacauga, Alabama.

AUTOMATIC Acetylene generator plans one dollar. J. H. Ragsdale, 210 West 4th St., Roswell, N. Mex.

DEMONSTRATORS, Electric arc welders. Money-saving prices. Used by the government. Trial and terms guaranteed. Hobart Welders, M-1053, Troy, Ohio.

300 AMPERE Welding generator. Fine condition. \$150.00. Wilnot Auto Supply, 1970 Wilnot St., Chicago.

ARC-WELDING Outfit \$1.25. Weld fenders, braze, solder. Lavrow, 4368-W. Warren, Detroit. Stamp appreciated.

ENGINES—MOTORS—DYNAMOS

FOR Sale—Small elec. motors, high speed. 1/10 h.p., 110 volts, universal. Reworked, \$1.50 postpaid. L. McConnell, 1619 Edgewood Ave., Racine, Wis.

MOTORS, 1/2 HP., 3600 rpm., repulsion-induction, \$14.50, ideal for saws. Kirkhof Electric, 344 Commerce, Grand Rapids, Mich.

25 SLIGHTLY Used 1/2 horse alternating motors \$9.85. 1/4 horse new General Electric \$5.90. Wilnot Auto Supply, 1970 Wilnot St., Chicago.

FIVE KVA 110 volt alternating generators \$89.50. Other sizes. Converters, motors. Queen City Electric, 1736 Grand Avenue, Chicago.

GOVERNORS Control auto engines—stationary or portable power uses. New big discount. No cash down. Special foreign terms. Agents wanted. Candee-Smith Governor Co., 215 North Los Angeles St., Los Angeles.

WINDING Data, 100 AC motors, various horsepower and voltage, \$1.00. Motor Data Co., 3002 Monroe, Kansas City, Mo.

REWINDING Motors and 330 other valuable articles in Shop Notes for 1935—50 cents postpaid. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

MACHINERY—TOOLS—SUPPLIES

14" x 6' LODGE & Shipley lathe, quick change, good condition. Price \$165.00. No. 1 Cincinnati Univ. mill, complete, price \$195.00. No. 60 Heald cylinder grinder \$175.00. All sizes of machine tools. Send for catalogue showing other bargains. Terms to suit. Cincinnati Machinery & Supply Company, 27 W. Second Street, Cincinnati, Ohio.

AIR Compressor. Special valves, manifold, convert T or A Ford motor 8 feet gasoline driven compressor. Guaranteed perfect. All parts, instructions \$7.85. O. D. Harvey, Box 481, Houston, Texas.

BARGAINS, Demonstrators, electric arc welders, guaranteed, 30 days trial and terms. Write Ken's Equipment, Box M-1054, Troy, Ohio.

KELLOGG Air compressors. Excellent condition. \$6.00. Taylor, 105 East 102nd Street, New York.

CONCRETE Building block machines and molds. Easy payments. Catalog free. Concrete Machine Co., 5 North Main St., St. Louis, Mo.

BOATS, OUTBOARD MOTORS, ETC.

BOAT Blue prints, paper patterns. Send postage for information. Box 1007, Station A, Cleveland, Ohio.

12-FOOT Flat bottom rowboat—complete plans 25c. Free boatbuilding catalog. The Rudder, 15 Murray Street, New York.

OUTBOARD Parts—New or used—All makes—What do you need? Crandall-Hicks Company, 782 Commonwealth Avenue, Boston, Mass.

BOATS, Camps, motor camping, trailers, outdoor sports, etc. Send for list of special books on. It's free. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

GUNS, FISHING TACKLE AND SPORTING GOODS

SPECIAL Discount. Guns, binoculars, cameras. Catalog dime. Refunded first order. Zeppelin Arms Company, Department 8, East Akron, Ohio.

GUNSMITHS' Secrets—Bluing, checkering, engraving, etc., 25c. International Agency, Cincinnati.

MAKE Dipsies for use or sale. Free folder. Reading Instrument Co., Box 78, Reading, Pa.

FIELD GLASSES, TELESCOPES AND MICROSCOPES

USED Binoculars, microscopes, astronomical telescopes, accessories. New microscope slides, natural history subjects. Engineers levels. P. O. Box 256, Amsterdam, N. Y.

AMERICA'S Greatest bargain! 3 foot telescope. Four sections. Brass bound. Removable caps. 10 X lenses, 15 mile range. Only \$1.10, postpaid. Karl Leonhardt, 3521 Garland, Detroit, Michigan.

MICROSCOPES Of any power. Make them yourself. Detailed instructions \$1.00. Foss & Son, 1418 Lewis, Fort Wayne, Ind.

MICROSCOPES, Telescopes, binoculars. America's lowest prices. Optical catalog free. Brownscope Company, 234 Fifth Avenue, New York.

ANTIQUES, RELICS, INDIAN GOODS

INDIAN Pack baskets; Hudson Bay blankets; sleeping bags; compasses; knives. Write for catalogue. Howe Fur Co., Box P, Coopers Mills, Maine.

100 GOOD Arrowheads \$3.00. List 3c. H. Daniel, Dardanelle, Ark.

15 ARROWHEADS, Scalping knife 98c—Spearhead, lancehead, birdpoint, drill 98c—Discoidal, gorget, tomahawk \$4.88. Photo-list 10c. Robert Heike, Rutland, Illinois.

ANTIQUE Firearms, Indian relics. Lists free. Nagy, 8P South 18th, Philadelphia, Penna.

5 ARROWHEADS 20c. 3 Birdpoints 18c. Knife, birdpoint, scraper, spearhead 45c. Catalogue. Coins. Minerals. Curios. Lemley Curio Store, Northbranch, Kansas.

ANTIQUE Guns, Indian relics. List five cents. Elmer Ellis, Webster Groves, Mo.

TAXIDERMY

TAXIDERMY Supplies—Quality artificial eyes, teeth, genuine Jonas head forms. Tools, materials, etc. Everything for the progressive taxidermist. Send for big illustrated catalogue—Free. Jonas Bros., 1049 Broadway, Denver, Colorado.

MODERN Taxidermist Magazine, Greenfield Center, N. Y. Devoted entirely to taxidermy. Sample copy 25c.

SEVEN-BOOK Taxidermy course, \$1. Free supply catalog. Taxidermic Manufacturers, Memphis, Tenn.

LEARN Taxidermy. Five courses. Blue Beaver Taxidermy School, Lemont, Ill.

PROFIT And pleasure in taxidermy. Complete guide for the preparing and mounting of animals, birds, fish, reptiles, etc., for home, den, or office. \$1.65 postpaid. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

DOGS, BIRDS, POULTRY, RABBITS

SPORTSMEN: 200 Pointers, Setters, straight cooners, combination hunters, rabbit and fox hounds, cheap, list free. Ramsey Creek Kennels, Ramsey, Ill.

SILVER Fox rabbits: Enormous profits. Proposition 10c. Hickory-Dell, Glenbeulah, Wisconsin.

FOX, Deer, coon hounds and varmint dogs. Shipper 30 years. J. R. Stephens, Marshall, Ark.

POULTRY Tribune—Leading poultry magazine. Five years \$1.00; six months trial 10c in U. S. Poultry Tribune, Dept. C-93, Mount Morris, Ill.

BEAUTIFUL Pure white police dogs. Ansonia Kennels, Mose, N. Dak.

ROOTS, HERBS, TREES AND SHRUBS

FREE! Send for this amazing new "Herbalist Almanac." Interesting! Instructive! Educational! Contains over 200 valuable herb medicine recipes and Indian secrets for home use. Beautifully illustrated in natural colors. Needed every home. Dime covers postage and handling. Write today! Botanics, 145 West 112th Street, Chicago.

FARMS AND FARM LANDS

STROUTS New catalog just out! The pick of 10,000 farms in 22 states from the Ozarks to California and Oregon, from Mississippi to Maine and Florida. Greatest collection of bargains ever shown, many with harvested crops, livestock and equipment for immediate money-making operation. Save money and time; write today for free copy. Strout Agency, 255-P 4th Ave., New York City.

FLORIDA Is calling you—No taxes on your home (homestead). Send today for new list of homes, groves and farms. Tampa-West Coast Realty Co., Tampa, Fla.

NEW Deal in farms, Minnesota, North Dakota, Montana, Idaho, Washington, Oregon. Rents are cheaper, prices lower. New low rates. Write for free book. E. C. Leedy, Dept. 1257, Great Northern Railway, St. Paul, Minnesota.

\$5 DOWN, \$5 Monthly, 20 acres in Missouri Ozarks, \$100. Fishing, hunting, trapping. Hubbard, 216 Grossman Bldg., Kansas City, Kansas.

INDEPENDENCE, Security assured, North Dakota, Minnesota, Montana, Idaho, Washington, Oregon farms. Bargain prices, easy terms. Descriptive literature, impartial advice. Mention state. J. W. Haw, 119 Northern Pacific Railway, St. Paul, Minn.

PROFITABLE OCCUPATIONS

"RAISE Frogs!" Sell up to \$5.00 dozen. Breeder lays 10,000 eggs yearly. Start backyard. Free book. American Frog Canning Company, (153-R), New Orleans, Louisiana.

RAISE Rabbits for us. We pay up to five dollars each. Large book and copy of American Rabbit Farmer gives full details. Ten cents. Address Outdoor Enterprise, Box 4, Holmes Park, Missouri.

FROG Raising—If interested, we guarantee to save you money. Send 10c for literature now. American Frog Industries, Rayne, Louisiana.

EARN By learning Easy-Way show card lettering, instructions to make and sell, \$1.00. Clenco, Postal Box 17, Verdun, Quebec.

GROW Ginseng—Profitable export commodity. Roots, seeds for sale. J. Hardacre, 2215 18th Street, Akron, Ohio.

BOOKS AND PERIODICALS

FREE—Catalog of 310 books on gas engines, electricity, carpentry, concrete work, taxidermy, letter writing, magic, occult sciences, ventriloquism, hunting, fishing, formulas, etc., with 25c credit certificate for 3c postage. Franklin Publishing Company, 800 North Clark Street, Dept. 2010, Chicago.

NEW Dream book, 116 pages, 2 sets numbers, clearing policy, 1200 dreams, bound in heavy gold paper, 25c postpaid. Buddy Packing Co., Lexington, South Carolina.

GAMES—ENTERTAINMENT

FREE Booklet, electric baseball, football. Electric Game Company, Holyoke, Mass.

MAGIC TRICKS, PUZZLES, JOKER NOVELTIES

NEW Diminishing vanishing card, non-folding, 15c; magic tricks, illusions, apparatus. Lists free. McKwade, 600 Martinique, Dallas, Texas.

AGE Cards. Find anybody's age—10c postpaid. Stanley Boyce, 366 French St., Bridgeport, Conn.

FREE Illustrated booklet on tricks and magic. The Joke Shop, Manchester, N. H.

MAGIC Catalogue 20c. Lynn, 105 Beach, Dept. 3, Jersey City, N. J.

240 PAGE Professional magic catalogue 25c. Lyle Douglas, Station A-5, Dallas, Texas.

ORIENTAL Magic, 72 colored illustrations exposing, explaining startling magic tricks, postpaid 25c. Weiss, Box 153, Chicago.

PROFESSIONAL Tricks. Free catalogue. Frank Lane, 5 Little Bldg., Boston.

BE A magician. Large professional magic catalogue of latest tricks 25c. Ireland's Magic Factory, 431 North Clark, Chicago, Illinois.

LARGE Professional magic catalogue, 25c. Holden, 220 W. 42nd St., New York.

STAMP COLLECTING

FREE! Abyssinia 120-129*, catalogue value \$1.48, and fine packet British Colonials, catalogue value \$1.50, given free with purchase Scott's 1936 catalogue—\$2.50. Mailed with imperforates. Approvals included. Kattau, 10315 - 108th Street, Richmond Hill, N. Y.

FREE—\$1.00 U. S. stamp, our choice, with request for 52 page price list of United States and foreign stamps. Stamps on approval. References necessary. Special 8 Nicaragua 1903—30c. New Hussman Stamp Co., 1122 Pine Street, St. Louis, Mo.

LIBERIA Snake triangle, Guatemala triangle, 30 other stamps, 5c. Crowder's, Carroll, Baltimore, Md.

FREE—United States \$10 stamp number 4339. Free—Saar Plebiscite stamp. Free—September issue of "Stamp Lore," the most fascinating stamp magazine ever published. This magazine, containing the most interesting stamp stories, cannot be subscribed to but is always sent free to our customers. We will send free all the above to approval applicants who send 10c for our unexcelled 19th century combination containing 15 genuine very old stamps including a United States stamp over 50 years old. Old stamps are always best. Write for yours today. Globus Stamp Co., 268 - 4th Avenue, Dept. 50, New York, N. Y.

NINTH Wholesale Review—Greatly enlarged, sent free on application. Empire Stampco., Dept. MP, Toronto, Canada.

WONDERFUL Packet free! To applicants requesting our approvals. Stampco, 8429 Island Drive, Seattle, Wash.

MAKE Your own stamp protectors! Special 4" x 30" roll Dupont Cellophane with complete instructions 25c. Arbetter, 421 S. Wells, Chicago.

5000 PENNY Approvals. Also 15,000 averaging 1½c. Philatelic Exchange, Edgewood, Rhode Island.

SCARCE Iceland airmail triangle and fine packet of 60 different stamps, including Ubangi, Chad, Gabon, Inini, St. Pierre, Togo, Senegal-savages, ships and animal stamps. Only 5c to approval applicants. Potomac Stamp Co., Dept. 110, Washington, D. C.

EXCELLENT Foreign approvals, 50 different British Colonial stamps 6c to approval applicants. H. Wilcox, Box 142, Torrington, Connecticut.

ZANZIBAR—Also Sudan, Somaliland, Tigerstamps, Togoland, Caribbean, Archer, Algerian, Centralamericans, Britishcolonials. This magnificent collection free for 5c postage. Graystampshop, Dept. PM, Toronto, Canada.

STAMPS, 150 Different with wholesale prices 10c. Nifty Specialty Co., 1817 Union, Altoona, Pa.

SILVER Jubilee 50 varieties unused \$2.50. 100 different Canadian \$1.00. Ontario Stamp Co., Box 444, Toronto, Canada.

HIGHEST Bidder, 1000 American, 350 foreign, close out stamp. 902 West Prairie, Taylorville, Illinois.

UNITED States approvals. Sullivan, New York Building, St. Paul, Minnesota.

1075 DIFF. Stamps \$1.75, cat. val. \$25.00. Square Deal Stamp Co., Sheboygan, Wisconsin.

ATTRACTIVE Canada packet free with approvals. Raymond Peterson, 391 Minnesota, St. Paul, Minnesota.

INTERESTING List of bargains, collections, free. F. Hughes, Peterborough, England.

25 DIFFERENT Denmark three cents to foreign approval applicants. Penn Stamp, Livingston St., Binghamton, N. Y.

EUROPE Mixture, 20 countries, 1 lb. \$1.75, ½ lb. 90c. Joe Mauser, 218 East 46 Street, New York, N. Y.

FREE!!! 22 Different Canada to approval applicants. Fort Dearborn Stamp Co., 5439-Aberdeen, Chicago.

DARK Magic packet. Kedah, Nyassaland, Sierra Leone and 100 other stamps, 5c to approval applicants. Ideal Stamp House, Nazareth, Penna.

LIBERIA, 1923 Set eleven, 20c to approval applicants. Keigwin Stampco, Vine-land, N. J.

UNITED States, Canada, Newfoundland, Mexico! Where? Our "Four Star" approvals. Nothing like them! Write today. Kessels, Box 808, Tucson, Arizona.

100 VARIETIES Unused 5c. Approvals. Century Co., 5127 Laflin, Chicago.

LONDON Bank parcels including Colonial Jubilee. Common stamps excluded. \$1 and \$2 per packet. Denham, 945 London Road, Thornton Heath, Surrey, England.

300 DIFFERENT 20c; 1,100, \$1; 2,000, \$2.50. Fred Onken, 630 79th St., Brooklyn, N. Y.

FREE! Scarce triangle! Set airmails! Packet ship stamps! Set 50-year old U. S. Watermark detector! This \$\$\$ combination absolutely free with bargain approvals! Postage 3c. Midwood Stampco, Midwood Station, Brooklyn, N. Y.

NEWFOUNDLAND, 15 Different 5c with approvals. Hudson Co., Plainfield, N. J.

40 GREECE 10c; 40 Japan 10c; 10 Epirus 10c; 25 China 10c. To approval applicants. Ancher Stampco, Rutherford, N. J.

ILLUSTRATED U. S. list, price 50c, large complete U. S. price list free. Stanley Gibbons, 36P Park Row, N. Y.

PESETA Goya Nude of Spain cataloging \$1, only 25c; 1 Peseta Nude, 10c; 10 Peseta Nude, 65c; complete Goya set, 18 values, \$1.35; approvals included. Paramount Stamp Company, 66-N Nassau Street, New York.

UNITED States—40 different with elaborate money-saving pricelist (44 pages) 12c. Pricelist alone, with refund coupon, 6c. Seidenberg, Baroda, Michigan.

MINT Park; commemoratives, Jubilee, 50 different, with approvals 20c. Collectors', 166 High St., Reading, Mass.

AIRMAILS! Pictorials! 65 different stamps from strange countries (no Europe), including beautiful New Guinea airmail, smallest stamp, Tasmania, Mozambique, etc., 10c to approval applicants. Bargain Co., Box 39P, Station H, New York.

EXHIBITION, Pictorial, air, etc., 5 sets 10c. Approvals. Glover's, Dow, Burnaby, British Columbia, Canada.

WASHINGTON Poland stamp, Piccard balloon, Belgium mourning, kangaroo, airmail, 25 others, 6c with penny approvals. Lejac, Rt. 2, Box 110, Chowchilla, Calif.

1000 WORLDWIDE Stamp mixture 25c. Monjar, 1542 Waverly, Cincinnati, Ohio.

FREE!!! Packet queer stamps from odd countries including Iraq, Rhodesia, Charkharl, Nigeria, with approvals. Postage 3c. Echostampco, P-1765 Ivar, Hollywood, Calif.

57 DIFFERENT Including British, French, Italian colonies, 6c with approvals. Killbuck Exchange, Wooster, Ohio.

40 DIFFERENT U. S., including commemoratives—10c. Century Stampco, 2502C Kenmore Place, Brooklyn, New York.

BIG Bargain: Old United States including commemoratives, also Grenada, Seychelles, Fiji, St. Lucia and many other dandies. Everything only 10c to approval applicants. Gateway, 4837 Hutchinson St., Chicago, Ill.

100 AMERICAN, Different: \$15 stamp. 902 West Prairie, Taylorville, Illinois.

FREE—Beautiful airmails, commemoratives, pictorials, from 10 countries to approval applicants. Green & Co., Norwood, Ohio.

MAMMOTH Mystery packet rare stamps only 10c to serious approval applicants, also valuable free premiums with every selection afterwards. Our stamps are better, our service is different. Fair-Play Stamp Service, 1215 Browning Blvd., Los Angeles, Calif.

AIRMAILS—Brazil, Chile, Columbia, Ecuador, Mexico—all for 10c with double premium penny approvals. Progress Stamp Service, Franklin Park, Ill.

150 DIFFERENT Including airmails, Brazil, Canada, Ceylon, Mexico, Newfoundland, 10c to approval applicants. Mantle Stamp Company, London, Canada.

UNITED States mixtures 50c, Belgium 90c, Canada 75c lb. Mission Co., 4512 North Racine, Chicago.

FREE—Attractive premiums with our bargain approvals. Send postage. Acorn Stamp Company, South Norwalk, Conn.

FREE—Complete set Denmark ship stamps to approval applicants. Sanders, 267 West 7th, St. Paul, Minn.

SUBINAM Tonga, etc. Three cents to approval applicants. Merit Stamp Shoppe, Guilford, Connecticut.

EARN Stamps, cash, selling 5-10c stamp packets. Crystal, 242 W. 30, New York City.

FREE! 12 Different Peru to approval applicants, enclosing postage. Ranson, 3555 Fullerton, Chicago.

UNITED States 45 different 10c. Approvals. Current postage bought. Boesch, 1956 84 Street, Brooklyn, N. Y.

1000 HINGES 5c With penny approvals. Ephram Stampco, River Forest, Ill.

110 DIFFERENT Stamps from Kouang-tcheou, Inini, Latakia, etc., 3c to approval buyers. Badger Stampco, (W25) Milwaukee, Wis.

PLENTY Of bargains on my quality approval selections. Maynard Sundman, Box 334, Bristol, Conn.

COMPLETE Issues—Mint. Montenegro 1896, 12 varieties, 15c. Persia coronation, 1915, 17 varieties, 40c. Wille Stampco, Box 285, Brooklyn, N. Y.

50 STAMPS From 50 countries 3c with approvals. Superb, Box 157, Jamesburg, New Jersey.

CANNON! Set of stamps showing cannon, firing squad, cavalry charge and 200 other different stamps only 10c to approval applicants. Paramount Stamp Co., 4225 Broadway, Chicago, Ill.

GET Stamps free. Choice U. S. and foreign stamps. Hundreds of varieties, all free to our members. No cost to join. Write at once for details—also for free book about stamps and their values. Yank Hobby Club, 212 W. Monroe St., Chicago.

ECUADOR Airmail in 105 different; Gabon, Congo, Guinea, etc., 5c to approval buyers. Hunziker, Box 225-M, Minneapolis, Minn.

50 SOVIET Russia \$0.10 to approval applicants. "Jewells," Tamaqua, Penna.

FREE Packet—50c catalogue to approval applicants. Send postage. Frank Ewing, 2096 East 89, Cleveland.

200 DIFFERENT (Catalog \$4.00) with packet hinges, 10c. Approval applicants only. Highland Stampco, Salamanca, N. Y.

OPPORTUNITY! Airmails from five countries, set Zanzibar, new triangle, St. Vincent, multitude others. Everything 10c to approval applicants. Krebs, Weirton, W. Va.

COMPLETE Collection every western hemisphere mainland country including Silver Jubilee, airmail, triangle, 10c to those wishing profit sharing advantages of approvals from Mutual Stamp Service, Box 666, Ventura, Calif.

PENNY Approvals loaded with real bargains. Taylor, 6122 Woodlawn, Chicago.

UNITED States approvals upon request. Traffic Station, Box 81, Minneapolis.

YOU'VE Tried the rest, now get the best! "Challenge Collection" including Cape Goodhope, triangle, Thessaly octagonal, commemoratives, 10c with approvals. Free airmail collection, additional premiums given regular customers. Bargain Stamp Service, 905 West Fifth, Los Angeles, California.

88 UNITED States, 10 Canadian Jubilees and new issues, all different, only 10c to applicants for our famous bargain approvals. 22 Strathearn Blvd., Toronto, Canada.

SPORTS—3 Var. Russia's new gorgeous bicolors. 5c to approval applicants. Rockcity, Little Valley, N. Y.

FAMOUS Piccard balloon, Columbus galleon, Bosnian assassination set, Eritrea camel, 10 airmails; 5c with approvals. Peegee Stampco, Station H-76, New York.

PENNY Approvals by country! Hoerning Stamp Exchange, Kansas City, Kansas.

STAMPS Wanted. Will pay \$100.00 for 1924, 1c green, Franklin (rotary, perforated eleven) \$1000.00 if unused. Cash paid for certain stamps found in old trunks, etc., also on daily mail, and in postoffices. Save all stamps, old and new. Large illustrated folder 10c. Philatelic Broker, 431-E Broad, Elyria, Ohio.

ALBUM Free—Spaces for 4,000 stamps, over 2,000 illustrations. Free to buyers of stamps. For details, write R. Stern, 23-56 Crescent St., Long Island City, N. Y.

125 DIFFERENT Postage stamps Argentine, one dollar. H. G. Spanton, Calle Bolivar 1484, Buenos Aires.

COMMEMORATIVES, 10 Different, 3c to approval applicants. Wollaston Stampco, Wollaston, Mass.

SWITZERLAND—100 Different 65c. High values, charities, commemoratives. Dougherty, 134-26 227th, Laurelton, N. Y.

UNITED STATES 2c civil aeronautics commemorative issued in 1928 and 15 different from Canada, Mexico, Newfoundland, U. S., including \$4.00 revenue, imperforate park. All for 8c to approval applicants. Clipper Stamp Co., Dept. 7, Gloucester, Mass.

MICHIGAN New 3c stamp. Lansing, only post office where this commemorative stamp will be sold first day, Nov. 1st. Single stamp on first day cover 15c. Block of four on cover airmail 25c. Send cash, no stamps. Order early. A. J. Pope, Box P-89, Oakville, Conn.

25 BRITISH Colonies free to approval applicants sending 3c postage. Splinter, Carpentersville, Illinois.

GREAT Bargain! Packet triangles, assortment airmails, lot old and recent U. S. including \$2.00 and \$5.00 stamps, multitude others and useful souvenir. Everything only 10c to approval applicants. Union Stamps, P. O. Box 134, Toledo, Ohio.

CANADA Catalog only 10c, with 50 diff. Canada 25c. World specials—500 diff. 30c, 1000 diff. 85c, 2000 diff. \$2.50. Approvals with each order. Victoria Stamp Company, London 4, Canada.

EXCHANGE Stamps, postcards by "Exchangers," 51 Passage Bureau, Paris, 126, France. Information free.

COLONIAL Packet free!! 25 beautiful French and British colonials sent to applicants for bargain approvals. Postage 3c. Kumler, King, Lancaster, Ohio.

40 DIFFERENT South and Central America, including airmails, commemoratives, bi-colors, pictorials; 10c with approvals. Bell, 4401-M Ethland, Baltimore, Md.

TRANSJORDANIA, Distant Trengganu, \$5 U. S., Turks Caicos Islands, Brunei, genuine Baden and Imperforated "Park"—all for 5c to approval applicants. Viking Stamp Company, Williamsburgh Bank Building, Brooklyn, N. Y.

AMAZING Value—35 different U. S. early commemoratives, air mail, etc., 10c to approval applicants. Stamp Shop, 809 Holland Bldg., St. Louis, Mo.

UNITED STATES approvals for serious collectors. References essential. Monitor Company, Box 212, Pasadena, California.

BARGAINS Galore. Penny approvals. Choice of thousands. Flood, Clinton, Mich.

GIANT-SIZED Russian Zeppelin stamp (cat. val. 20c!) and beautiful Lithuania air-mail triangle; also big packet of 53 diff. stamps including Azerbaijan, Epirus, new Martinique, etc. and illustrated lists—all for 5c to approval applicants! World-Wide Stamp Co., Box 600, Camden, New York.

\$2.00 U. S. Capitol, No. 572, current postal issue. Cataloging 50c, only 5c, with approvals! Giant U. S. list, free! Tatham Stampco, Springfield, Mass.

ASCENSION, Grenada, pictorial commemoratives. Also other scarce islands 10c. Provided you desire approvals. Grandstamps, 919 South Grand, Los Angeles, California.

MOZAMBIQUE, Jamaica, Portugal, British Colonials—30 different, 5c. Depraw, Ocean Park, California.

PENNY Approvals, that satisfy. Neil Gronberg, Box 5441-P, Philadelphia, Pa.

WEEKLY Stamp magazine, thirteen weeks, 10c. Stamp Journal, Kalamazoo, Mich.

FREE!!! Russia ethnographic set. Postage 3c. Roberts, 901F Fourth, Baycity, Michigan.

50 STAMPS 1c, Mostly obsolete. Album 3c. Bullard, 416 Tremont, Boston.

STAMP Dealers, your ad here will bring wonderful returns. Ask me for proof. F. W. Johnson, Manager, Classified Advertising, Popular Mechanics Magazine, 200 E. Ontario St., Chicago.

STAMPS Sent on approval. 50% discount. Fred Herzberg, 197 Grantley Ave., Elmhurst, Illinois.

SCARCE Airmail and triangle. Beautiful Uruguay "flying horse" airmail and scarce Guatemala triangle (smallest in the world) are included in our big packet of 60 different stamps from Alouites, Grand Liban, Venezuela, British and French Colonies, etc. All for 5c to approval applicants. Big illustrated lists free with each order. Write today! Mystic Stamp Co., (Dept. 80), Camden, New York.

200 DIFFERENT 10c. Big 50% approvals. Covert Stamp, 39 State, Rochester, N. Y.

THIS Ad worth 25c. If you send for our approvals and buy 50c worth or more—large selection of U. S. and foreign—reasonable prices. Morton Stamp Co., 1121 Olive, St. Louis, Mo.

A BIG Bargain—All for only 55c. Stamp album, providing spaces for 2200 stamps with 700 illustrations, packet of 500 different stamps, 500 hinges, and millimetre measure. Free with each order our pamphlet which tells "How To Make A Stamp Collection Properly," and our price list of albums, supplies and hundreds of bargains in sets and packets. Queen City Stamp Company, Room 30, 604 Race Street, Cincinnati, Ohio.

KOOKABURRA Bird!! Bolivia triangle! Packet of unusual stamps containing rare Kookaburra Bird, scarce Bolivia triangle, famous money stamp (printed on cardboard and also used as currency!); airmails from Mexico and Brazil; map, ship, animal, commemorative, etc. No Europe. Only 10c to approval applicants. DeSoto Stamp & Coin Co., 105 No. Clark St., Chicago, Ill.

FREE Dollar packet with penny approvals. Harlan, 5307 South Marshfield, Chicago.

IMPERFORATE National Park, 2 diff. and 33 U. S., including early issues; high values; commemoratives; airmail; envelopes; special delivery; postage due; revenues cataloging over 85c. All for 7c to approval applicants. Illustrated pricelist free. Curhan Stamp Co., Dept. P, Gloucester, Mass.

FREE—25 Different United States stamps to approval applicants. Brownie Stamp Shop, Flint, Mich.

RARE COINS

FOR Sale: United States old coins at special prices. Bargain selling price list and California 50c gold token 25c. Arcy, Box 483, Muskogee, Okla.

UNITED States large cent and bargain list 10c. 10 large cents 80c. Frank Lenz, 50 Station L, New York City.

20 ASSORTED Coins 25c. 100 coins \$1.00. Otto Oddehon, Williamstown, Kansas.

RARE Celebes rooster coin and bargain lists, dime, W. Webb, Box 1854, St. Petersburg, Fla.

OLD Money wanted. Will pay fifty dollars for 1913 Liberty head nickel (not buffalo). I pay cash premiums for all rare coins. Send 4c for large coin folder. May mean much profit to you. B. Max Mehl, H Mehl Bldg., Fort Worth, Texas.

2 UNCIRCULATED Coins, 4 notes, big bargain list, all 10c. Hubert Carcaba, St. Augustine, Fla.

COMMEMORATIVE \$½s, Lincoln, Patriot, Sesquicentennial, Oregon Trail, Maryland, Arkansas, Kentucky, San Diego \$1.50 each. Eighty page catalogue 10c. Norman Shultz, Salt Lake, Utah.

UP To \$300.00 paid for dime dated before 1890, liberty head nickels \$75.00, pennies \$50.00. Send 15c for coin book. Phillips Coinco, West Springfield, Mass.

BUYING All rare and common coins—\$300.00 paid for dimes dated before 1895; liberty head nickels \$200.00; 1909 cent \$10.00; half cents \$250.00; 1792 cent \$2000.00; colonial coins \$300.00; 1928-50c \$5.00; silver dollars \$2,500.00; gold dollars \$500.00; \$5 gold pieces before 1888 \$5000.00; encased postage stamps \$13.00, etc. Send 15c today for big catalog, before sending coins. Nationalcoin Company (F7), Springfield, Massachusetts.

PENNIES, Old coins and common used stamps wanted—Highest prices. We pay up to \$100.00 for cents; silver dollars \$2000.00; halves \$500.00; quarters \$250.00; dimes \$300.00; half-dimes \$150.00; certain 1909 cent \$10.00, etc. Make extra money selling us common used stamps. Send 10c for three latest buying lists before sending coins or stamps. Coin-Stampmart, 6730D Jeffery, Chicago.

50,000 COINS, Medals, papermoney. Lists free. Nagy, 8P South 18th, Philadelphia, Penna.

12 DIFFERENT Coins 25c. California gold quarter 25c. Brooks, 624 Cameron, Dallas.

EXCEPTIONAL Coin bargains. List and foreign coin, 10c. List of coins wanted, 25c. Joseph Coffin, 1182 Broadway, New York.

\$2000.00 for 1c. We pay the world's highest prices for old coins, and paper money. Large cents up to \$2000.00 each, half cents \$250.00, 1909 cent \$10.00, Indian head cents \$50.00, half dimes \$150.00, 25c before 1873 \$300.00, 50c before 1879 \$750.00, silver dollars before 1874 \$2500.00, gold dollars \$1000.00, trade dollars \$250.00, 1822 \$5 gold \$5000.00, old paper money \$28.00, encased postage stamps \$12.00, certain foreign coin \$150.00, etc., send dime for large illustrated list before sending coins. Romanocoinshop, Dent 564, Springfield, Mass.

WE Buy 1907 Indian head cents. Full information one dime (coin). Mattick, Box 3450, Altoona, Pa.

FREE! Foreign coin, banknote, and large illustrated coin catalogue. Send 4c postage. Coin approvals sent. Tatham Coinco, Springfield-125, Mass.

RARE United States, foreign coins, war medals. Catalogue 10c. Mengelle, Colorado Springs, Colorado.

UNITED States. Large cent, 2c bronze, 3c nickel and bargain list, 25c. Thirteen dates large cents, \$1.00. George P. Coffin, Augusta, Maine.

\$5.00 TO \$500.00 Each paid for old coins. Keep all old money. Send 10 cents for illustrated coin value book. 4x8. Guaranteed prices. Buying and selling. Coin Exchange, Box 5, Le Roy, N. Y.

CAMERAS, PHOTO SUPPLIES

EARN Money at home. Learn to develop and sell pictures. Outfit complete with full instructions \$2.50, not postpaid. Let us quote prices on photographic equipment. Morris Laboratory, Williamston, Michigan.

MAKE Money with a kodak. Sell your snapshots. New booklet describing 100 best magazine markets 25c. Mayfair Service, Box 1447, Alexandria, La.

DEVELOP And print your own pictures. Save time, money with our guaranteed \$1.00 outfit. Includes electric ruby lamp, chemicals, photo paper and equipment. One of thousands of bargains in our big summer clearance bargain book. It's free. Send for it today. Central Camera Co., Dept. K-10, 230 South Wabash, Chicago.

MAKE Money in photography. Learn quickly at home. Spare or full time. New plan. Nothing like it. Experience unnecessary. American School of Photography, Dept. 343-B, 3601 Michigan Avenue, Chicago.

HAVE You a camera? Send ten cents for recent number of our big magazine, showing how to make better pictures and earn money. American Photography, 116 Camera House, Boston, 17, Mass.

INCOME From your camera instead of expense. Low cost home course teaches you to make photographs for magazines, newspapers, advertisers. Tremendous demand. Earn good money wherever you live. Free book. Universal Photographers, Dept. 104, 10 West 33rd St., New York.

PHOTO FINISHING

ROLL Developed, 8 oversize artistic border prints 29c. Enlargements free. Coupon given with every roll. Reprints 3c. Church Studio, P2, Enterprise, Ore.

ROLL Developed and printed. Two enlargements, one of them in colors, all for 25c coin. The Photo Finisher, Station E 42-2, Columbus, Ohio.

ROLL Developed, 8 quality prints, and beautiful individual album, 25c. Howard Photo Service, San Fernando, Calif.

20 REPRINTS 25c. Films developed, 16 prints 25c. Enlargements 8x10—25c; 5x7, 10c. Low Photo, M-2657 Neva, Chicago.

ROLL Developed, 8 guaranteed prints, one enlargement 25 cents. Jack Rabbit Company, Spartanburg, S. C.

TWO 5x7 Professional enlargements with each film, 25c. Lightning Film Service, LaCrosse, Wis.

FREE! Send two negatives for two beautiful glossy 4x5 Panel Art prints and bargain list. Roanoke Photo Finishing Company, 309 Bell, Roanoke, Virginia.

TWO Professional enlargements with each roll developed and printed 25c. Eight reprints, two enlargements 25c. Hygloss, River Grove, Ill.

ROLLS Rushed! Developed and printed with two Supertone enlargements 25c. Extra enlargements four for 25c. Nutone, Maywood, Illinois.

FILMS Developed 2 prints of each 25c; 20 reprints 25c. Pine Photo, M-5134 Neva, Chicago.

JUST Published! Newest methods for developing, printing, reduction, intensifying. Money saving and money making photo ideas out of photos. 16 pages present inside professional theories and ideas. 25c postpaid. 25c redemption coupon with order. Send today! Winn, 124H West 23 St., N. Y.

MOUNTED 5x7 Enlargements; two, 25c. Send negatives, coin. J. Bruff, 1475-B Grand Concourse, New York.

35 REPRINTS 25c (Trial). Larger orders 1c per reprint. Professional 8x10 enlargements 25c. Send picture or negative. "Neverfade," Maywood, Ill.

SPECIAL Trial offer! Your next Kodak film developed 5c, prints 2c each. Moser & Son, Dept. 23, Walnut Hills, Cincinnati, O.

TRIAL Roll developed and 8 prints 25c. Reprints 3c. Hand colored photo Christmas cards or photo greeting calendars from any negative 10c each, 14 for \$1.00. 8x10 enlargement 25c. Young Photo Service, 405 Bertha St., Albany, N. Y.

ROLL Developed, printed and beautiful Coloscope enlargement, value \$1.00, trial 25c. Hollytints, P156, Hollywood, Calif.

ROLL Developed, 8 beautiful double deckle prints, 5x7 enlargement, 25c. Quick service. Quality guaranteed. Elkhart Photo Service, Elkhart, Ind.

ROLL Fully developed, carefully printed and two beautiful full size 5x7 double weight professional enlargements (or one tinted enlargement)—all for 25c coin. Reprints 3c each! The experts' choice! Immediate service! No delay! The Photo Mill, Box 629-Z, Minneapolis, Minn.

KODAK Enlargements 5x7, 10c, 3 for quarter, coin. Send best negative (film). Xint Photo Lab., Dept. 5, Cedar Rapids, Iowa.

ROLL Developed and printed and two enlargements 25c. Prompt service. Electric Studio, Escanaba, Mich.

WE Develop a roll, print the pictures and hand color one—glossy finish. All for 15c. Reprints 1c each. Howard's, 1467 Irving Park Blvd., Chicago.

BEAUTIFUL Panel-Art enlargement with each roll developed and printed 25c. Ideal Photo Service, Box 2255, Paterson, N. J.

FILMS Developed. Any size. 25c coin, including 2 enlargements. Century Photo Service, Box 829, LaCrosse, Wisconsin.

BEAUTIFUL Glistening prints, roll developed, 8 guaranteed glistening prints, 2 enlargements 25c. American Photo Service, 2946 Nicollet, Minneapolis, Minn.

20 REPRINTS 25c. 100 Reprints \$1.00. Rolls developed with 16 prints 25c. Nordskog, 4, Maywood, Ill.

HAND Colored enlargement with each roll 25c. 40 reprints 50c. Colorgraph, Dunning Station, Chicago.

FINER Finishing. Rolls developed and printed. Colored enlargement, or two double professional enlargements all for 25c (coin). Genuine, nationally known. Moentone superior quality. Moen Photo Service, Box P-867, LaCrosse, Wis.

BEAUTIFUL Colored enlargement with each film 25c. Speedy service. Satisfaction guaranteed or money refunded. LaCrosse Film Company, LaCrosse, Wis.

ROLL Developed, two prints each negative 25c. Reprints 2 1/4c. Enlargement coupon. Willard's, Box 3535-A, Cleveland Heights, Ohio.

ROLL Developed and 16 prints 25c. Smart Photo, Winona, Minn.

ROLLS Developed. Two beautiful double-weight professional enlargements and 8 guaranteed Never Fade Perfect Tone prints. 25c coin. Rays Photo Service, LaCrosse, Wisconsin.

20 REPRINTS 25c. Films developed, two prints each negative, 25c. Skrudland, 4118-8 Overhill, Chicago.

ROLLS Developed, two sets guaranteed prints and enlargement coupon 25c, reprints 3c each, over 19, 2 1/4c. Jones Studios, Davenport, Iowa. "Where the West Begins."

ANY Size kodak film developed 2 prints of each negative and two free enlargement coupons, 25c. Reprints 2c each. Summer's Studio, Unionville, Mo.

MOTION PICTURES AND SOUND EQUIPMENT

BARGAINS In everything relating to movie making offered in our sensational bargain book. Savings to 50% on cameras, projectors and equipment. 16 mm. color-balanced film only \$3.00 per hundred including processing. Bargain book lists hundreds of other money-saving items. Your equipment accepted in trade. All merchandise guaranteed. Write today for this great free bargain book. Central Camera Co., Dept. K-110, 230 South Wabash, Chicago.

16MM FILMS—Art 10c foot. Mickey Mouse—Chaplin Silly Symphony 5c foot. Big features rented anywhere \$3.00. Lists. Thousand feet 35mm \$1.00. Features \$7.50. Projectors, cameras \$3.00 up. New 16mm talkies \$20.00 reel. Waldo Films, Box 524, Cincinnati.

NEW 16MM Films, just released, 25 ft. to 400 ft. Send for illustrated catalogues. Hollywood Cine Film Distributors, 1437 No. Highland Ave., Hollywood, Calif.

READY Made titles 20c. Titles \$3.69. Electric editor \$4.49. Steiner printer \$39.95. Developing tanks, rack \$25.00. Splicers 98c. 400 ft. 16 mm. reels 25c. 1" lenses \$3.95. Kodak C projector \$19.50. Heydes Cine exposure meter \$2.49. Kodachrome 100 ft. \$6.60. Turret Victor camera \$65.00. New motor projectors complete: 500 watt fan cooled \$64.00, 300 watt \$29.50, 100 watt \$19.50. Seven speed camera automatic \$27.95. Victor Model 12 "B" Animatophone complete \$292.50. Soundonfilm silent library, free catalogue, membership. We buy, trades accepted. Mogull Bros., 1944-N Boston Road, N. Y.

BASS Bargain counter: Cine headquarters offers 100 ft. Mono film including developing \$2.95. Bell & Howell Filmo 70C, spider turret, three lenses, case, \$77.50. DeVry 47, 100 ft. automatic 16 mm. camera, F:3.5 lens, \$21.50. New book on 8 mm. Cine photography complete \$1.00. Hundreds of other bargains in Bass Bargaingram No. 215. Send to headquarters for free copy. Bass Camera Company, 179 W. Madison St., Chicago, Ill.

16MM FILM Cost cut to \$1.00 for 100 ft. Write for free information. Noyes Laboratories, Western Springs, Ill.

8MM OWNERS: New titling film, home finishing data, reversing, new accessories, better pictures. Information free. Film Specialties, Box 458-A, El Monte, Calif.

100 FEET 35MM. 27c. Bargain lists 3c. Hoffman Film Service, 57 Broad, Albany, N. Y.

MICKEY Mouse, Popeye, Betty Boop 16 M. films \$2.25 per 100 feet. Exchange, 210 Armstrong Avenue, Jersey City, New Jersey.

EASY Terms! 16mm. movie equipment. Elder, Dept. B-16, Chelsea, Massachusetts.

FREE—16MM Bargain lists. Projectors \$1.00 up. Films 35c up. Art sample 25c. Home Movies, Box 32, Easton, Pennsylvania.

CLOSEOUTS—Projectors, cameras, films. Listings stamp. Box 2133, Paterson, N. J.

SPECIAL Closeout of lot of Paragon movie cameras. Brand new. Equipped with F:3.5 lens. Perfect condition. Regular price \$35.00. While they last \$19.85 cash with order. Burke & James, Inc., Photo Supplies since 1897, 223 W. Madison St., Chicago, Ill., U.S.A.

16MM FILMS Bought, sold, exchanged. Catalogue, 10c. Fotoshop, 136A West 32, New York.

SUPERSPEED Panchromatic 16mm film, 100 ft., \$3.75. Other films from \$2.19. Bargains in new, used equipment. Send for circular. Fotoshop, 136A West 32, New York.

LEARN Motion picture theatre business. Catalog. Theatre Institute, Elmira, N. Y.

WORLD'S Greatest "Passion Play" 16 MM. (new) 5 reels. Rent or purchase. Hemenway Film Co., 37 Church Street, Boston, Mass.

100' 16MM. SUBJECTS—New, \$2.25 up; used, \$1.65 up. Sound, silent rental library. Dime brings catalogue, two "end" titles. Eastin Pictures, Box 682, Davenport, Iowa.

HIGHEST Prices paid for used still-movie equipment. Send description. Fotoshop, 136A West 32, New York.

DEVELOP Your own movies, reversal and negative-positive instructions, 50c. Milio, 622 Myrtle Ave., Brooklyn, N. Y.

FILMS, Projectors. 10c coin for lists. Capital Productions, Rosedale, Kansas.

RADIOS—SUPPLIES—INSTRUCTION

MAKE Simple long distance pocket radio. No tubes. No batteries. Reception over hundreds of miles reported. Supersensitive Melomite crystal and instructions. 25c postpaid. Melomite, Dept. EP, Fairmount, Kansas City, Mo.

"REDHOT" California super quality crystals, 2 for 35c. Best by test. Crystal Radio Company, Wichita, Kansas.

LEARN Radio—\$1.00 per lesson. No obligation. No notes to sign. Missouri Technical Schools, Inc., 3907 N. 25th St., St. Louis, Mo.

ALL-WAVE Radio kit, \$1.95. Full instructions. Security Radio, 5540 Webb, Detroit, Michigan.

RADIO Experimenters and set builders. Parts and kits of parts for the Six Tube 32 Volt Farm Set, Economy Three, Five and Four Tube Little Giant, Auto Radio, Portable Battery Set and Metal Locator described by Popular Mechanics. Lund Manufacturing Co., 43 E. Ohio, Chicago.

RADIO Engineering, broadcasting, aviation and police radio, servicing, marine and Morse telegraphy taught thoroughly. All expenses low. Catalog free. Dodge's Institute, Ames St., Valparaiso, Ind.

AUTO Radio noise eliminated. Throw away sparkplug suppressors. Special filter, easily installed. \$2.00 postpaid. State Radio Service, K-2002 State Street, Chicago.

RADIO. All phases. Amateur, shortwave, experimenting, set building, broadcasting, servicing, etc. Complete list recommended books free. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

MUSIC AND MUSICAL INSTRUMENTS

GEORGE Wade's Cornhuskers old time dance tunes, violin and piano 50c. Harry Jarman & Company, 43 Scott Street, Toronto, Canada.

USED—Rebuilt nationally known instruments. Bargain prices. Supply limited. Write at once for information. Tom Brown Music Company, 315 South Wabash, Chicago.

POPULAR Sheet music, assorted, 20—\$1. Orchestration 10—\$1. Silverman, 3303 Lawrence, Chicago.

REBUILT Band and orchestra instruments. Honestly rebuilt—fully guaranteed. Catalog of new instruments on request. Weymann Company, Dept. M-10, 13th and Arch Sts., Philadelphia.

SONG Writers opportunity—phonograph record of your song, manuscript. Musical arrangements. Free information. Paramount Song Recording Studio, J-1, Warner Bros. Theatre Building, Hollywood, Calif.

PIANO—Vocal scores from melody, \$2.00. Publishing type orchestrations, \$5 to \$12. Lee, 109 Judson, Syracuse, N. Y.

COMPOSERS. Verse—music. Brilliant opportunity. Write immediately. Vanburen, 63 McClurg Bldg., Chicago.

SONGWRITERS: Original poems and melodies wanted. Square deal. Roy Allen, Kitchel, Ind.

JAZZ Piano by ear. Mail \$1.00 bill today for new, magic, guaranteed course. Hollywood Piano Studios, 6842 Sunset Blvd., Hollywood, California.

SONGWRITERS Wanted! Publishing, broadcasting, opportunities. Information free. "Song Service," 714 Caracas Street, Tampa, Florida.

I PAY Cash for song poems or music. J. W. Earle, 140 West 42nd, New York.

YOU Can play your favorite instruments in 12 weeks. A Canadian method. Personal supervision, nothing mechanical. Many outstanding successes. Terms for course and instrument. Folder "Music by Mail" sent free. Marrazza Music School, 1247 Bleury St., Montreal, Canada.

DUO-FLEX Reeds for clarinets, and saxophones eliminate your reed troubles. Write for circular. Duo-Flex Reeds, 1204 1st Ave., Evansville, Ind.

SONGWRITERS—Get all the inside facts. Free booklet by famous Broadway composer. Songwriters Institute, 330C Wadsworth Avenue, New York.

NEW Deal. Write Sequoia Songwriters Service, Sherman Branch, Los Angeles, Calif.

WANTED: Original poems, songs. Get our proposition first. MMM Publishers, Studio Bldg., Portland, Ore.

SONGWRITING. Good money being made from songs through talking pictures, radio, phonograph, music publishers. "Hit" writers revise, arrange, compose music to your lyrics, lyrics to your music. We submit to studios and other markets. Free reading. Send for booklet. Universal Song Service, 671 Meyer Bldg., Hollywood, Calif.

SONG Writers. Send for our "Publishing Agreement." McKinley Music Printers, 1501 E. 55th St., Chicago.

SONG Poems wanted, free examination, 50-50 plan. Song Bureau, Salem, Ind.

SURVEYING INSTRUMENTS

GUARANTEED Factory rebuilt instruments for rent (with purchase option) or sale (cash or terms). Largest selection in United States. Ten day free trial. Liberal allowance for old instruments. Save money by buying now. Write for new list M-910. Warren-Knight Co., 136 North 12th St., Philadelphia, Pa. Manufacturers Sterling Transits and Levels. Headquarters for repairs any make surveying instruments.

BUSINESS OPPORTUNITIES

NEW Money maker supreme. \$50 up weekly. Big premium offered makes customers your agents. Keeps you busy delivering. Complete details 25c, worth dollars. Flemko, St. Clair Shores, Michigan.

START Own business resilvering mirrors, refinishing metal, plated articles, autoparts, tableware. Experience unnecessary. Small investment for portable home outfit. Sprinkle, Plater, 127A, Marion, Indiana.

FREE Books mail order business. Home work stamp. Dolsen Herald, 75 Gates, Brooklyn, New York.

300 MONEY Making plans, formulas, free literature. Weick, 2840 Zenobia, Denver, Colorado.

GET Lots of mail. Money making offers, etc. Your name in 10,000 directories, 25c. Roseco, 4627 Glenshade, Cincinnati.

OPPORTUNITIES Galore! New letter duplicator complete \$3.00. Profitable sales rights! Details. Mailmarts, PM-10, Cincinnati.

WORLD-WIDE Offers, opportunities, 25c. Name your interests. Mailmarts, Cincinnati.

POPCORN, Crispette, caramels, potato chip, salted nut machines. Long Eakins, 1960 High St., Springfield, Ohio.

NEED Cash? Raise new, patented all-season mushroom; cellar, shed. Wholesaler (ten branches) supplies, materials; instructs, buys crops. Details free. United 3848-A174 Lincoln Ave., Chicago.

LEARN Account collecting. Good income, quick results. Interesting booklet free. National Collectors Association, Newark, Ohio.

1000 IDEAS, Formulas, business plans! 25c. Quarterbookco, 1161-24th, Des Moines, Iowa.

START Mail business! Beginner's guaranteed plan 25c. Haas, Oakford, Pa.

GREAT Demand, no competition selling standardized reflecting signs. Start a paying business, no cash required. Copony & Sons Co. Mount Clemens, Michigan.

MOAIC. Reproduce the mosaics of Radio City. Make portraits of your friends in colored marble. Full instructions 1 dollar. Mosaic Studio, 1063 Gerard Ave., New York.

MONEY Making formulas. Be your own boss. Start a business from your home. Free catalogue. L. H. Berry, Dept. 310, 4348 Broadway, Chicago.

STEADY Cash income resilvering mirrors; replating fixtures, tableware. Easy factory methods. Experience unnecessary. Make outfits. O'Custer, HP-224 Highland, Detroit, Michigan.

WAYS To Wealth Magazine, Box 745, Minneapolis, Minn., 9th year. Tips, plans, formulas, schemes, home workers' opportunities. Three months, 25c.

MODERN Method brings steady income in circular mailing business. Particulars for stamp. Dixie Publishing Company, Station-A, Greensboro, N. Car.

START Little business anywhere. Everything furnished. No canvassing. Maywood, PM-923 Broadway, New York.

PROFIT With new products. Make, sell, repeat. Guaranteed formulas, special prices, leads. Biggest catalog free. Gibson, Chemist, BD-4702 No. Racine, Chicago.

BIG Profits in movie programs. Stamp brings folder. Murdock, 7117 Parnell, Chicago.

"KEY to Business Opportunities" free. Goodall Company, Box 1592, San Francisco.

AGATES—Information on cutting, polishing, making necessary equipment. Send 25c. Rough agate assortment \$1.00. Mockel Co., Williston, N. D.

CASH Income. No canvassing. Home, office prospectus free. Bluhm Co., 203 So. Strevel Ave., Miles City, Montana.

"MAILBOX," National magazine of mail order work. Sixty pages home-business plans, schemes—\$\$\$ ideas each issue. Secrets how Sears-Roebuck, Montgomery Ward, etc., made millions from spare time start. 35c sample 10c. Troy, 17, N. Y.

GROW Mushrooms right now—a steady income—in cellar, shed or stable. Exclusive new process. Bigger, better, quicker crops—more money for you! We buy. Book free. American Mushroom Industries, Dept. 444, Toronto, Ont.

POSTCARD Addressed Box 500. Shreveport, Louisiana, brings best proposition ever received.

LARGE Profits when you learn Easy-Way show card lettering. \$1.00 brings instructions that can make you independent. Clenco, Postal Box 17, Verdun, Que.

END Financial worries with honest, legitimate propositions. Details 3c stamp. Getz, 127 Brick St., Dickson, Penna.

BARGAINS—Paint spray outfit, gasoline engine drive. Terms—trial. Helmick Paint Spray Exchange, M-1055, Troy, Ohio.

LEARN Flexible mold making with our Synthetic Rubber Composition. Inexpensive cold process. Equals pure rubber. Learn snow-white composition marbleizing for novelties and decorating. New methods. New materials. Free assorted marble and rubber samples. Illustrated literature. Cowell Institute, Grayling, Mich.

MAKE \$100 To \$500 weekly in a business all your own. Our system specialty manufacturing offers you this opportunity. Free book explaining everything. National Scientific Laboratories, 1950W Broad, Richmond, Va.

"PROSPERITY" For home workers. 52 page magazine. Sample, dime. Sizemore, 4917 N. Kostner, Chicago.

TWENTY New successful mailorder propositions. J. Home, 3949 Metropolitan, Chicago.

MAIL Order business your big opportunity. 3c stamp brings details. Stewart Morse, 1009 Oak, Elmira, N. Y.

"TURN Ideas into cash." Free details. Martinez-PM, San Bernardino, Calif.

ARTIFICIAL Marble sanitary flooring, instructions covering wood or cement flooring 1/2 inch thick, fireproof, all colors, low cost, ornamental casting, concrete, plaster, papier-mache, garden furniture, statuary, flexible molds, particulars free. Chris. Mahler, Elmont, N. Y.

FREE Booklet describes 87 plans for making \$20-\$100 weekly, in home or office, business of your own. Elite Co., 214 Grand St., New York.

I WANT To send you proof of the wonderful pulling power of Popular Mechanics Magazine's classified pages. What's your proposition? Write me today. F. W. Johnson, Manager, Classified Advertising, 200 E. Ontario St., Chicago, Ill.

PLASTEX Industries offers industrious men an opportunity to start a business of their own, manufacturing art goods, novelties, souvenirs, etc., in Plastex and marble imitation. 3c material makes \$1 articles. Rubber moulds furnished for speed production. Small investment brings big returns. You are just in time for the big 1935 business. Write for interesting booklet mailed free. Plastex Industries, Dept. A, 1085 Washington Ave., New York.

MAIL Order business is your opportunity. Many began small, now earn thousands yearly. No personal contact. Boundless opportunities. Have had over 30 years experience; will help you succeed. Send 25c for valuable booklets, none free. B. Breniser, 257 South 21st, Philadelphia.

CHEMICAL Expert will furnish formulas and trade secrets. All lines. Lists free. W. L. Cummings, Ph. D., 228 Gordon Ave., Syracuse, N. Y.

SELL By mail. Books, novelties. Bargains! Big profits. Particulars free. B. Elfco, 525 S. Dearborn, Chicago.

"SCHEMER Magazine," Alliance, Ohio, prints schemes, ideas, business starters, formulas; winners—\$10,000 to \$50,000 reported. 37th year. \$1. Subscribe now. Six months special, only 30c.

TURN Scrap into money. Convert old auto generators into A.C. generators for auto radio, camp and home lighting, power and other uses. Complete instructions \$1.00 postpaid. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

OPEN A key-making shop. Start a permanent profitable business with a small sum. No skill necessary. Write for particulars. Belsser Mfg. Co., 411 E. Fort, Detroit, Michigan.

FREE Circulars describing how you can make big money in mail order business at home in spare time. Write today. Mail Order Institute, 669-H Marcy Avenue, Brooklyn, N. Y.

CHARTERS: Delaware; best, cheapest; free forms. Colonial Charter Co., Wilmington, Del.

SUCCEED With your products. Learn how. Formulas. Processes. Analytical service. Catalog free. B. Thaxly Co., Washington, D. C.

INVESTIGATE Frog raising—a profitable side line. New book explains and illustrates every phase of subject. Covers very latest developments such as plans of constructing ponds, combination frog feeder and fly traps, getting other live food electrically, also the roly poly, a new mechanical feeder. \$2.00 postpaid. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

MONEYMAKING OPPORTUNITIES

1000% PROFIT. Mold plaques, statues, novelties, etc. Big demand for Xmas trade. Genuine rubber molds supplied for speed production. Amazingly low prices. Write today. Stewart's Studio, 2102 West 19th, Chicago.

ADVANCE Yourself! Earn big money home, outdoors, anywhere. "Income Ideas," free offers help you succeed quickly; 10 cents. Start now—prosper! New Idea Service Co., 217-A Seventh Avenue, New York.

EXTRA Money from old inner tubes. Plans, 25c. Metromails, P-10, Cincinnati.

MONEY Making plans. Book of 150 pages \$1.00. Rappe, Box 1189, Phoenix, Ariz.

HOMEWORKER Magazine—filled with profitable ideas! 3 months, 25c. Mailmarts, Cincinnati.

KILL For money—Make up to \$75 weekly as a professional exterminator. Your own business. Customers everywhere. My easy method quickly shows you how. Free details. Thomas, Manager, 2650 Carmen, Chicago.

TO Win you must "do something different," particulars free. Publishers Sales Company, Box A 67, Nelson, Georgia.

100 MONEY-MAKING Plans 25c. Brian Business Bureau, 221 Berteau, Elmhurst, Illinois.

HOME Mailing stunts! Operate anywhere. (Free plans.) National Services, Fairview, Birmingham, Alabama.

FREE—Money making ideas. Borchardt, 1217 W. Wright, Milwaukee, Wisconsin.

LEARN Mirror, transparent mirror making, \$5.00. Kerby Sutton, Bogalusa, La.

MILLIONS Unemployed! Supply price-less, job-getting information (got man 76 jobs). Keep dollars paid; we fill orders free. No selling. Stamp brings details. Co-Operative Service, 77 Swan, Buffalo, N. Y.

PLANS—Formulas—24 guaranteed money-makers, 25c. Lexicon, 126 W. 115 St., New York City.

AQUARIUMS Easy to construct. Copyright instructions 10c. "Aquarium," Fullerton, Pa.

BIG Money at home plating auto parts, reflectors, mirrors, chandeliers; by new method; experience unnecessary. Outfits furnished. Gunmetal Co., Ave. N, Decatur, Ill.

FREE Booklet describes 87 plans for making \$20-\$100 weekly, in home or office, business of your own. Elite Co., 214 Grand St., New York.

108 PLANS, Formulas, ideas, 50c. Box 261, Riveredge, N. J.

CIGARS, Profitable, selling dealers, individuals. \$1.25 brings 50 cigars and information. H. H. Direct Sales, 246 Fifth Ave., New York.

HOW To identify and determine value of old precious metals. Where to buy. To whom to sell. Reliable and up-to-date information. Complete instructions only \$1.00 postpaid. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

FORMULAS, PLANS, ETC.

FOOT Specialist's secret formula—Overcomes athlete's foot, callouses, soft corns, excessive perspiration, offensive odor. Formula 25c (silver). Crouch, 205 So. 12th St., Pekin, Ill.

FORMULAS. All kinds. Guaranteed best. Catalog. "Special Offer Free." Kemico, 32, Park Ridge, Ill.

CHINESE Cookery, 300 practical recipes. Unique. \$1.00. Creart Publications, Honolulu.

16 SPLENDID Formulas, automobile specialties. \$1.00. L. LeBlanc, Box 564, Mt. Vernon, N. Y.

FORMULA Troubles? Cosmetics, drugs. Chemical engineer treats inquiry individually. Fees proportionate to research involved. Hancock, 2146 25th Street, Astoria, New York.

MONEY Makers, any formula: 10c, 15 for \$1.00. Formula, 902 West Prairie, Taylorville, Illinois.

PRACTICAL, Positive rust remover formula. No scouring. No acids. Specimen, particulars 3c. Harry Fesenfeld, Black Earth, Wisconsin.

BEAUTY Formulas—Ten for 25c (coin). Baum, 9039A 148 St., Jamaica, N. Y.

FORMULA Bulletin—Year 10c. Terrone, 22 Station 8, Brooklyn, N. Y.

24 SELECTED, Valuable household and beauty formulas 25c. Udelfer Co., 134 Bushkill Street, Easton, Penna.

CLOSEOUT! 10,000 Copies of formula and business plan book! 10c each. Fine-print, Des Moines, Iowa.

MAKE Money. Home or traveling. Sell my formulas; or manufacture yourself. Complete instructions. One sale a day \$5.00 to \$25.00. Money back guarantee. Chemist, Box 2142, Reno, Nevada.

RELIABLE Formulas and scientific information, catalog. Church & Galle Laboratories, Marissa, Ill.

500 MONEYMAKING Formulas 25c. Descriptive literature free. Harvey Teeple, Decatur, Indiana.

PROFESSIONAL Chemist offers his services on any question of drugs, cosmetics, polishes, adhesives, foods, etc. \$1.00 per formula. Every inquiry treated individually. Address Fader, 552 Riverside Drive, New York.

NEWEST Guaranteed formulas. Biggest catalog free. Special prices, leads. Gibson, Chemist, BD-4702 No. Racine, Chicago.

GENUINE Manufacturers formulas. Nationally advertised products. All fast sellers. 500 to 1,000% profit guaranteed. Wholesale prices. Start now. Lists free. Thermo-S Works, Peoria, Ill.

ANY Product analyzed, qualitatively, \$5.00. Dobin Laboratory, 1746 Roscoe, Chicago.

GUARANTEED Formulas—We send completed samples. Specify what you want. Miessene Products, Box 372, Columbus, Ohio.

ANY Formula—50c! (List; eight formulas—10c)! Thos Galluzzo, Wilkesburg, Pa.

TWENTY Profitable "make-and-sell" formulas, 25c. International Agency, Cincinnati.

25 HIGHEST Grade formulas. Guaranteed. Send \$2.00. Mention kind. Atkins, 4579 Garfield, St. Louis, Mo.

3000 FORMULAS, 368 page volume \$1.00. 110 new moneymaking formulas 20c. Ideal Book Shop, Park Ridge, Ill.

FORMULAS—Business ideas. Literature free. Belfort, 4042 N. Keeler, Chicago.

SUCCEED With your products. Learn how. Formulas. Processes. Analytical service. Catalog free. B. Thaxly Co., Washington, D. C.

3,000 FORMULAS, Facts, processes, trade secrets in Dr. Brown's Book of Formulas—380 pages. Price, postpaid \$1.00. Ogilvie Publishing Co., 57 Rose Street, Dept. 25, New York.

TESTED Formulas—Largest, most complete line. Newest—guaranteed. Catalog free. Grinstead Laboratory, Edwardsville, Illinois.

SCORES Of tested money making ideas for home, shop, farm. Send for list. It's free. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

CHEMISTRY

NEW Big catalog. Chemical sets, microscope outfits, laboratory, biological, chemical supplies. Approved by experimental laboratories. Special 30 day offer. Send 10c. Winn, 124G West 23rd St., N. Y.

BECOME A trained chemist! Earn big money! Equip your own laboratory. Supplies as low as 5c! Send 15c for valuable catalogs. Kemkit Chemical Corporation, 135 P Johnson Street, Brooklyn, New York.

JOIN. American Amateur Chemists Society. Particulars, magazine 10c. 1001 Erector Square, New Haven, Conn.

FREE Instructions for copper plating and etching on metal by electro-chemical process. Write at once to The Porter Chemical Co., 19 Prospect Avenue, Hagerstown, Maryland.

CHEMICAL Set. Performs 85 experiments. 25c. Fleischer's Laboratories, Everett, Mass.

CHEMICALS, Laboratory glassware and apparatus. Catalog CP. Biological Supply Co., 1176 Mt. Hope Ave., Rochester, N. Y.

15,000 PROFIT Making formulas. Following and many others: Accidents and emergencies, agriculture, alloys and amalgams, artist's materials, beverages, cements, glues, pastes, mucilages, bleaching, renovating, coloring metals, dyeing glass, heat treatment of metals, household formulas, ice cream, confectionery, chewing gum, lapidary work, exterminating vermin, lubricants, paints, varnishes, photography, condiments, canning formulas, rubber, soap, candles, soldering, toilet preparations, perfumes, waterproofing, fireproofing, writing materials. \$5.50 postpaid. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

AGENTS WANTED

MEN Wanted by shoe manufacturer, established 31 years to take orders for remarkable line of highest quality dress and work shoes for the entire family, including special bargains as low as \$1.98. Good pay every day and your own shoes at factory prices. No experience needed. 3 line sales outfit free. Write Mason Shoe Manufacturing Co., Dept. M20, Chippewa Falls, Wis.

MEN! Big earnings daily. Represent manufacturer industrial uniforms for gas stations, garages, dairies, laundries, fleet owners, others. Individual and group orders pay big. Lettering free. Equipment free. Dept. PM10, Star, 165 Varick Ave., Brooklyn, New York.

CHRISTMAS Cards. Sell 50 assorted leatherette folders, name imprinted, \$1.00. Highest commission. Samples free. Dunbar, New Brunswick, N. J.

\$2.00 HOURLY With new, scientific cream that mends all cloth easily, quickly. Invisibly without needle and thread. Stands laundering. Free sample. Sew-No-More Co., Dept. P-744, Cincinnati, O.

MAKE Your own products. Guaranteed formulas for fast sellers. Catalog free. Kemico, 45, Park Ridge, Ill.

BOSTON-ORACLE! Latest vogue in parlor-games. Everybody is tapping. Original. Fine proposition for agents. Send 25c for sample copy. Address The Boston Oracle Co., Box 860, Boston, Mass.

\$6.85 HOURLY! Amazing No-Flat fixer punctures without patching; makes tires puncture proof! Instantly—permanently seals holes made by nails, etc. Big seller. Free sample offer. No-Flat, Dept. P-172, Cincinnati, Ohio.

NEW Scientific cleaner. Nothing like it. Thousands of uses. Millions of customers. Fast seller. Great repeater. Large profit. Exclusive territory. Sample free. Roy R. Poole Company, Dept. L, Hermon, N. Y.

MAKE Big money; commissions advanced; sell Goodyear raincoats, jackets; union made; latest style. Lowest prices; experience unnecessary; outfit free. Goodyear, BB-1133 Milwaukee, Chicago.

EXCLUSIVE Distributor: Trial order with particulars \$1.00. Your profit \$2.00. Money back if misrepresented. Bur-Lite Special, Hudson, Ohio.

MEXICAN Feather pictures. Christmas novelty. Send 25c (stamps) for \$1.00 worth sample and details. Mexican Art, Apartado 1593, Mexico City.

STRANGE Ironing cord. Saves electricity. Abolishes scorching and kinking. For telephones also. 150% profit. Sales guaranteed. Big free offer. Neverknot, Dept. 10A, 4503 Ravenswood, Chicago.

MEN Wanted for coffee routes. Earnings up to \$42.50 first week. I send everything; you don't risk a penny. Automobile given if you qualify. Albert Mills, 9100 Monmouth, Cincinnati, Ohio.

CASH Income daily silvering mirrors at home. Plating autoparts, tableware, etc. Combination outfit. Write Sprinkle, Plater, 128, Marion, Indiana.

CELLOPHANE Ribbons will increase your earnings. New Christmas designs. Big profits. Sample folders free. Fremar, 421 S. Wells, Chicago.

AGENTS—Engraved name plates, number plates, signs, etc., easily sold, profits large. Brett Bros., Winthrop, Mass.

AMAZING Fast selling \$1.00 item, 100% and over. Men and women. Experience unnecessary. Write for particulars. Capital Mfg. Co., 720 - 17th St., N. W., Washington, D. C.

100 PROFITABLE Mail order and local business plans. A. Pruitt, Elburn, Ill.

SHOE Manufacturer's sales division wants men. Complete lines of dress and work shoes for entire family. Also special bargains as low as \$1.98. Guaranteed quality. Good pay every day and your own shoes at wholesale prices. No experience needed. 3 line outfit free. Write Consolidated Shoe System, Dept. R16, Chippewa Falls, Wis.

900,000 ARTICLES Wholesale. Directory 1,500 jobbers \$1.00. 300—25c. Vox, B-933-M, Denver.

SHOW Sensational new silk hosiery line. Guaranteed to wear without holes for months or replaced free. Quick sellers. Big profits. Samples supplied. Send size. Wilkmit Hosiery, Desk L-37, Greenfield, Ohio.

NEW Transparent day and night signs; 8"x14"—cost 4c; retails 25c. Sample free. Lowy, Dept. 26 - 8 West Broadway, New York.

AMAZING Free gifts make customers constant repeaters paying you 180%. Positive proof of agents collecting \$100.00 per week. Nielsen, 1203 Bank St., Cincinnati, O.

POPCORN, Crispette, caramelcrisp, potato chip, salted nut machines. Long Eakins, 1961 High St., Springfield, Ohio.

DOLLARS Daily! Operate home! Mail-order businesses. Details, Duffy, Covington, Ky.

SPLASHLESS Water filters always sell. Valuable 25c, 200% proposition. Free try-out. Box 63, Times Square Station, New York.

SELL Neckwear. Fall line ready. 100% profit. Four samples, \$1.00. Free catalog. Artstyle Neckwear, Elmira, N. Y.

NO-STITCH—Amazing fluid mends hosiery, clothing without sewing; guaranteed; sure seller. Free samples of work. Large tube 25c. Queen City Mfg. Co., Dept. PM-105, Cincinnati, O.

NEW Specialty sells to every bar, restaurant, tavern. Pocketful nets big daily profit. Free sample. Gordon Corp., 110 East 23rd, New York.

BIG Commissions selling personal Christmas cards and stationery. Extra bonuses. New 21 folder \$1. Christmas assortment. 100% profit. Free album and box on approval. Wallace Brown, Inc., 225 Fifth Ave., Dept. 310, New York.

100% PROFIT. Sell new 21 all-folder \$1. Christmas assortment. 10 other fast selling money making boxes. Extra bonus. Samples on approval. Write Schwer, Dept. 410M, Westfield, Mass.

CHRISTMAS Card salespeople. 100% profit. Fastest selling 21 folder \$1 assortment. 9 other boxes. Bonuses. Samples on approval. Chilton Greetings, 179Y Lincoln, Boston, Mass.

AMAZING Invention engraves names, initials, trade marks, etc., on brass, copper, gold, silver, aluminum, nickel, Bakelite. Writes like pencil—cuts like chisel. Make money engraving articles for stores, gift shops, jewelers, surgeons, contractors, manufacturers, etc. Or sell "Engrav-rite" at double your cost. Described page 46 July Popular Mechanics. Free circular. Quality Mds. Co., Dept. P.M.10, 2306 Lincolnwood Dr., Evanston, Ill.

SELL Made to measure raincoats. Outfit free. Goodyear Rainwear, 18 West 22nd, New York.

500% PROFIT Selling new "20-in-1" kitchen utensil. Retail 25c. Costs you \$1.00 a dozen. \$7.20 a gross. Sample 10c. New Method Co., P.M.-34, Bradford, Pa.

U-KAN-PLATE Really replates old brassy bath room fixtures, auto accessories and other metals with silver. Agents wanted, 3-oz. 50c; 8-oz., \$1. Justice, 904 Walnut St., Philadelphia, Pa.

PROFIT With new products. Make, sell, repeat. Guaranteed formulas, special prices, leads. Biggest catalog free. Gibson, Chemist, BD-4702 No. Racine, Chicago.

EARN Good living selling fast moving shirt and tie line. Outfit free. Dobbs, 627 Lafayette Bldg., Philadelphia, Penna.

MEN—Women \$3 to \$6 daily. Selling 25c household necessity that repeats. Three to ten sold in every home. Free sample. Write Puro Company, 3107 Pine St., Dept. P-2045, St. Louis, Mo.

YOUR Own business selling silk stockings, lingerie, handkerchiefs, shirts, ties, underwear. Wholesale prices low. Merchandise high quality. Catalogue free. B. H. Satterthwaite, Huntington, New York.

CHRISTMAS Cards! Absolutely finest assortment. Big profits. Write for samples. Robinson Cards, 95 Orange, Clinton, Mass.

ENORMOUS Profits in a business of your own! Sell new, used clothing from home, auto or store. Everything furnished. Illinois Jobbing, X-610 Adams, Chicago.

SELL American-made, 1000 hour guaranteed electric light bulbs, always in demand, full or part time; big profits. Globe Specialty Company, 132 Seventh Street, Pittsburgh, Pa.

SELL Steri-Aire tooth brush cabinets. Sensationally different! No competition! Every home must buy. The new safeguard to health. Assorted colors. Hangs on any wall. \$1.00 postpaid. Money back guarantee. Allen A. Stevens Mfg. Co., 612 N. Michigan Ave., Dept. G, Chicago, Ill.

"WINDOW-RITER"—Magic pencil writes on glass. All colors. Storekeepers buy quickly. Ideal for baseball scores. Large profits. Big repeaters. Free sample. Lake Chemical, 6 E. Lake, Dept. 10-PM, Chicago.

PROFITABLE Home business. Legitimate. No canvassing. Maywood Publishers, P-923 Broadway, New York.

100% PROFIT In the "Self Starting Cigar Lighter." No flint or friction. What makes it light? No wind can blow it out. Retail 25c. Costs \$1.75 per dozen. Sample and sales plan 25c. New Method Company, Desk PM-34, New Method Bldg., Bradford, Pa.

NEW Type hotel range burner uses cheap oil. Lights like gas. French Oil Burner Co., Sebastopol, Calif.

A BUSINESS Of your own. Making chipped glass name plates, numbers, signs, checkerboards, medallions. Big illustrated book free. E. Palmer, Dept. 56, Wooster, Ohio.

EXCELLENT Trouserpresser, stretcher, creaser, hanger. \$1.00. Agents 60c. Toy wagon 8c, agents 40c doz. Widness, 1461 Fulton St., Brooklyn, N. Y.

DISTRIBUTORS: A few quick easy sales daily nets you \$58.00 weekly. Represent manufacturer—Latex—amazing selfsealing bandage that breathes. Wonderful demonstrator. Irresistible appeal. Exclusive territory. Neway, 39-J South Clinton, Chicago.

MANUFACTURE At home—Flavorings, polishes, lotions, shampoos, medicines. Just add water to our concentrates. Your name on labels. Free sample. Quality Chemicals, E-5735 15th, Detroit.

AGENTS For the fast selling Wonder genuine leather ties. Smart, snappy, sell on sight. New patterns. New low prices. Steady repeat on your own business, be independent. Write Wonder Novelty, Dept. 5, 409 Fort E., Detroit, Mich.; Canadian Office, 148 Campbell, Windsor, Ont.

AGENTS, Sell Neon-like signs, catalog free. Sample 10c. Roscoe Lynch, Bausman, Pa.

GOLD Reflecting letters for store windows. Easily applied. Large sizes, penny each, free samples! Atlas Sign Works, 7941 Halsted, Chicago.

FORMULAS—Money makers. Literature free. Belfort, 4042 N. Keeler, Chicago.

MILLIONS Of motorists need amazing new auto invention. 35c seller. 250% profit. No competition. Experience unnecessary. Particulars free. Casadden Bros., Lapel, Indiana.

SELL New food specialty. Spicy butter. Colavit's Co., Perkasio, Penna.

MAKE More money taking orders shirts, ties, underwear, dresses, hosiery, raincoats, jackets, pants, uniforms. Write quick. Nimrod Company, Department 8, 4922-28 Lincoln Avenue, Chicago.

SELL By mail. Make thousands of dollars. Home. Spare time. Mail Order Institute, 669-G Marcy Ave., Brooklyn, N. Y.

WHY Work for others? Make and sell your own goods. We show you how. Free book explains everything. National Scientific Laboratories, 1950W Broad, Richmond, Va.

YOU Are the salesman we want to sell our pre-shrunk, vat dye broadcloth shirts. Liberal commissions. Postage prepaid on shipments. Write for free sample outfit. Glenmont-Chadwell Corporation, Nashville, Tenn.

EARN Living year around sell men's dress shirts. Finest pre-shrunk broadcloth. Once sold, repeaters follow. Commission advance. Outfit free! Best-Uv-All, 1133B Milwaukee, Chicago.

AGENTS: Smash go prices! Santos coffee 12c lb. 4-oz. vanilla 8½c. Razor blades 10 for 8½c. 100 sticks chewing gum 12c. Christmas cards, 21 in box, 14c. 150 other bargains. Experience unnecessary. Write Carnation Co., P.O. St. Louis, Mo.

SUCCEED With your products. Learn how. Formulas. Processes. Analytical service. Catalog free. B. Thaxly Co., Washington, D. C.

CALIFORNIA Flower beads sure fire fast sellers. Big profits. Low prices. Catalog free. Mission No. 16, 2328 W. Pico, Los Angeles, Calif.

BIGGEST And quickest sales are made in brushes. Write for proposition. Wire-Grip Sanitary Brush Corporation, 45 East Eleventh Street, New York.

NEW Cleaner! Washes clothes quickly. Cleans everything. Premium deals. Free sample. Bestco, 5007 Irving Park, Chicago.

BIG Money applying gold initials on automobiles. Easiest thing today. No experience needed. Free samples. "Balco," 1084 Washington, Boston, Mass.

GENUINE Gold letters for store windows. Easily applied. Free samples. Liberal offer to general agents. Metallic Letter Co., 438-B North Clark, Chicago.

AGENTS: Stamping names on pocket-key protectors. Sample check with your name, address, 25c. Stamping outfits. Emblem checks, check-fobs, name plates. Hart Mfg. Co., 303 Degraw St., Brooklyn, N. Y.

AGENTS—Opportunity to make money; book containing 87 successful business plans; home or office; send for free introductory booklet. Elite Co., 214 Grand St., New York.

BIG Money and fast sales. Every owner buys gold initials for his auto. You charge \$1.50; make \$1.45. Ten orders daily easy. Write for particulars and free sample. American Monogram Company, Dept. 40, East Orange, N. J.

MAN In each town to plate auto parts, reflectors, bathroom fixtures, refinish beds, mirrors, chandeliers; by new method. No capital or experience required. Simple plan of manufacturing at home starts you in big money-making business. Outfit furnished. Free particulars and proofs. Gun Metal Co., Ave. H, Decatur, Ill.

HIGH-GRADE SALESMEN

SALESMEN—Sell complete line quality printing. All business necessities. Gummed labels, adv. cards, salesbooks, calendars, Hammill bond stationery, etc. New features. Large spot cash commissions. Complete sales outfit free. All-Trades Printing Service, Dept. CP, Rockford, Illinois.

SELL Firex—Minimum commission \$1.50 per unit. Three anti-fire devices in one. Automatic fire extinguisher—Automatic fire alarm—Hand operated fire extinguisher. Prospects everywhere. Firex Corporation, 514 South Broadway, St. Louis, Mo.

WANTED, Salesman. Represent factory. Big profits. Protected territory. Department C, Campbell-Hausfeld Co., Harrison, Ohio.

SALESMEN: Acquainted with garages, filling stations, to handle local business. Write Colgra, 2636 N. Third St., Milwaukee, Wisconsin.

DON'T Be a job hunter—Start your own business on our capital. No hard times; no lay-offs; always your own boss. Hundreds average \$3000 to \$5000 annual sales year after year. We supply stocks, equipment on credit. 200 home necessities. Selling experience unnecessary. Wonderful opportunity to own pleasant, dignified, profitable business backed by world wide industry. Write Rawleigh, Dept. J-U-PPM, Freeport, Ill.

AUTO Accessory salesmen. Free deal for dealers. Irresistible appeal. Complete line auto accessories priced right. 25% commission daily. Exclusive territory. Outfit free. National, 1910-DP Wentworth, Chicago.

HERSHEYS, Baby Ruth, Oh Henry! candy deals. 1c-5c display and punch deals. Living scale. Steady employment. Casterline Bros., 1916 Sunnyside, Chicago.

MAKE Big money steady. High grade coveralls, shopcoats, pants, shirts, summer suits. Advertising on back. Fast sellers. Free outfit. Strong Mfg. Co., 901 West Jackson, Dept. N-7, Chicago.

A BIG Opportunity for men acquainted in daily, ice cream, bakery, laundry, restaurant, beer garden, road stands and green house trade with a new product with unusual merit. Easy sales. Quick money. Electric Screen Products Corp., Dept. PM-5, Dubois and Clay Aves., Detroit, Mich.

GIVE Away free 1936 short wave and home radios, also full electric automobile radios with our unique "Punch Sales Card Plan." 2 sales daily pays \$203.88 weekly profits. Write for our free starting offers. DeLuxe Mfg. Co., Dept. 210, 173 W. Madison, Chicago.

POPCORN, Crispette, caramels, potato chip, salted nut machines. Long Eakins, 1962 High St., Springfield, Ohio.

PERMANENT Connection in protected territory representing one of largest fire equipment manufacturers in United States selling municipalities, industrials and residences. All Underwriters' Laboratories approved equipment. Real financial opportunity. Absolutely no investment required. The General Fire Truck Corp., 4131 Forest Park Blvd., St. Louis, Mo.

NEW Marvelous electric light bulb gives strong concentrated white light. Consumes 36% less current. Stores, factories, institutions buy quantities on sight. Big profits. Exclusive opportunity for right party. Masterlite Corp., 110 East 23rd, New York.

ART Calendars—Leading line, many subjects. Sell on sight. Every business a prospect. Samples free. Flemming, 6541 Cottage Grove, Chicago.

MARVELOUS New creations, fast sellers, big repeaters. White ring remover takes off heat and alcohol rings, also scratch remover and furniture renewer and a new type polish for autos and furniture. Gold mine for distributors. Send \$1 for salesman's samples, \$2.50 value. Moonbeam Chemical Company, 4618 South Broadway, Los Angeles, Calif.

BIG Money in tire patches. Sell new auto tire patch to service stations, garages, etc. Tiger-Grip patches guaranteed 10,000 miles. \$75 weekly for salesman or distributors. Protected territory. Write Economy Rubber Co., 771 Burkhardt, Dayton, Ohio.

SELL Jewelry on installment! Small investment. Peters Manufacturing Co., Box 734, Providence, Rhode Island.

MAN—Handle regular store route. Place nationally advertised 5c-10c counter card mdse. New aspirin deal—6 tablets 5c. 85 other fast sellers. 100% profit. No investment. Samples free. World's Products Co., Dept. 10810, Spencer, Ind.

SALESMEN! Earn to \$10.00 daily commissions selling five months guaranteed shoes for whole family. Build independent business. Free samples. Moench Shoes, 3, Boston, Mass.

SELL Union label stationery—New sensation! Gold, silver or white tearoff cards with case, \$2.95 up. Calendars, labels, sales books. Lowest prices. Big commissions. Cut service. Outfit free. Publix, 633 Plymouth, Chicago.

SALES Tax law forces merchants keep records; men averaging \$25.00 daily commission; exclusive territories open. Millgreen Publishing Co., 370 Seventh Ave., New York.

STRANGE Chemical sponge cleans cars like magic. Banishes auto-washing drudgery. Sells on sight. 150% profit. Outfit free. Kristee Mfg., Dept. 260, Akron, Ohio.

BE Independent. Own your business; experience unnecessary, selling \$10,000 accidental death, \$50 accident; \$25 sick weekly benefits—\$10.00 yearly. Other amounts proportionate. Guaranteed steady renewal income. \$726,415.63 securities deposited. Universal Policy, 716-A Lefcourt Bldg., Newark, New Jersey.

"HARD To interview" prospects made easy. Sales doubled weekly if you use "Salesman's Secret or How to Get a Favorable Interview." Amazing discovery. Write. Free particulars. Wendell West, Box 145, Oakland, California.

SALESMEN: Sell complete line gummed labels, calendars, memo books, and business stationery. Special features. Free deals. Write quick. Big comm. daily. Attractive sales portfolio free. Lionel, Dept. DX, 312 So. Hamilton, Chicago.

SCOTTY Handcleaner. Something new and very satisfactory. Write for samples and proposition. Moneymaker for boys. Scotty Handcleaner Company, 6 Humphrey St., Greenwood, Mass.

SOMETHING New in fire extinguishers. Red Comet Automatics. Proved in west five years. Exclusive territory. Low price opens pocketbooks. Write Red Comet, 404 Comet Building, Littleton, Colorado.

GOLD Reflecting letters for store windows. Easily applied. Large sizes, penny each, free samples! Atlas Sign Works, 7941 Halsted, Chicago.

SELL Process raised letter printing \$3.95 thousand. Free cut service. Worth \$6.00. Commission \$1.00 advanced. Experience unnecessary. Outfit free. United, F-6155 South State, Chicago.

NEW Federal and state tax laws force, under severe penalties, the keeping of proper business records. Immense demand for our officially approved tax record. Sells at sight. Repeat commissions without callbacks. Men selling 5 to 25 daily. \$3.50 cash profit every sale. Commonwealth Publishing Co., 508 So. Dearborn, Chicago.

BRAND New grab-bag deal. Going big everywhere—big profits—swift sales—fast repeats. No restrictions. All dealers buy. Act! K&S, 4373 Ravenswood, Chicago.

START A business of your own! Become a subscription representative for "Popular Mechanics." No capital required. Liberal commissions. Monthly bonus. Write for details. V. D. Angerman, Circulation Manager, 200 East Ontario Street, Room 235, Chicago.

NEW Specialty—Sells every business and professional man. Four \$15 sales daily pay \$280 weekly. Foyer cleared \$4920 in three months. Write, F. E. Armstrong, President, Dept. PM, Mobile, Ala.

SALESMEN—Sell collection systems. 400% commission. Sayers Systems, 2801-123 Sheffield, Chicago.

SELL Punchboards direct to dealers from world's leading punchboard factory. Wholesale prices. Enormous profits. Big commissions. Sales kit free. Harlich Co., 1407 Jackson, Chicago.

FREE Booklet describes 87 plans for making \$20-\$100 weekly, in home or office, business of your own. Elite Co., 214 Grand St., New York.

OUTDOOR Sports for everyone—Enjoy them all year round with aid of book published by Popular Mechanics. Hundreds of ideas for new and popular sports for every season; complete instruction for making necessary equipment at small cost. 350 pages and 650 illustrations. \$2 postpaid. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

MAKE More money taking orders shirts, ties, underwear, dresses, hosiery, raincoats, jackets, pants, uniforms. Write quick. Nimrod Company, Department 65, 4922-28 Lincoln Avenue, Chicago.

HELP WANTED

SHOW Sensational new silk hosiery line. Guaranteed to wear without holes for months or replaced free. Quick sellers. Big profits. Samples supplied. Send size. Wilknit Hosiery, Desk L-370, Greenfield, Ohio.

MANUFACTURER Wants local man—Represent line starchless collar shirts; also ties, underwear, Sox, exceptional values; maker to wearer; large earnings daily; cash bonuses regularly; we start you without investment; expensive outfit free. Write Dept. PM10, Quaker, Broadway at 31st St., New York.

MEN Everywhere buying sensational new starchless collar shirts. Big daily cash earnings. Bonuses. Promotion. Also complete guaranteed haberdashery line. New fall selling outfit free. Write today. Dept. K10, Public Service Mills, West New York, N. J.

MAN Wanted—Old established manufacturer will finance responsible man with complete stock guaranteed food products, farm and household necessities. Very pleasant work. Excellent opportunity for good living and extra money to save every week. Pays better than most occupations. B. M. Anderson sold over \$402.70, A. M. Karel over \$347.48 and H. E. McMillen over \$314.15 in one week. No slack seasons or layoffs. Experience unnecessary. Write today for No-Investment offer. McConnon and Company, Room 66KT, Winona, Minnesota.

LEARN Air conditioning—America's next big industry. Thousands of opportunities for far seeing men. Get your start with complete new book by E. W. Riesbeck. \$3.50 postpaid. Popular Mechanics Press, Room C35, 200 E. Ontario St., Chicago.

GO Into wholesale business without investment. Call on stores with biggest line self-selling counter displays: Aspirin, razor blades, handkerchiefs, breathlets, household cement, 79 different items. Up to 125% profit for you. Experience unnecessary. Write for catalog and plans. Procopax, Dept. 360D, 1956 S. Troy, Chicago.

GROW Mushrooms right now—a steady income—in cellar, shed or stable. Exclusive new process. Bigger, better, quicker crops—more money for you! We buy. Book free. American Mushroom Industries, Dept. 445, Toronto, Ont.

MECHANICS—Handy small work—take false teeth impressions for family and friends. Teeth returned in wax to check—work guaranteed—\$5 up—20% commission. Hecolite—Parfait—Special on new roofless plates \$15. Send 15c for outfit. Dr. Williams, 101 Krause Bldg., Tampa, Fla.

BIG Money growing mushrooms, cellar, idle places. Supplies furnished. We buy. Free book. Mushroom Growers, HP-433, N. Clark, Chicago.

USE \$500? Raise canaries for us. Crimmins, 37-41 60th, Woodside, N. Y.

NEED Cash? Raise new, patented all-season mushroom; cellar, shed. Wholesaler (ten branches) supplies materials; instructs, buys crops. Details free. United, 3848-A178 Lincoln Ave., Chicago.

FREE Suit and large cash profits for every six \$15.95 all wool tailor made to measure suits you sell. No limit to number of free suits you may earn. Three Star Clothes, 330 S. Franklin St., Chicago, Ill., Dept. 35.

MAN And wife—To run local coffee agency. Earnings up to \$300 in a month. I send everything needed. No money risk. Ford Sedan given if you qualify. Write Albert Mills, 9096 Monmouth, Cincinnati, Ohio.

EDUCATIONAL AND INSTRUCTION

LEARN Machinist trade, tool, die making. Automatic and hand screw machines. Modern shop methods. Actual work. Jobs open for trained men. Employment help. Illustrated booklet free. Allied Screw Machine Company, 601 Lake Street, Chicago.

LEARN Esperanto, the international language, by mail in ten lessons. Roy Schreiber, Kewaskum, Wisconsin.

LEARN Latest developments in arithmetic. Frederick A. Smith, 2410 Smalley Court, Chicago.

RAILWAY Postal clerks. Men 18-35. \$1900 first year regular. Prepare immediately for next examinations. Full particulars—free. Franklin Institute, Dept. B3, Rochester, N. Y.

INVESTIGATE The collection business. Highly profitable; quickly learned. Cole Associates, Syracuse, N. Y.

SECRET Service. Valuable information free. International Secret Service Institute, PM-105, Hoboken, N. J.

SOUTHERN Hotel positions. Instruction. Lee Institute, 176 Mystic, Somerville, Massachusetts.

SHORTHAND In 30 days. Wonderful Boyd system. Free lesson and catalog. Chicago Home Study Schools, 801 Reaper Block, Chicago.

STUDY Law at home. High grade instruction. Est. 1892. Catalog free. Chicago School of Law, Reaper Block, Chicago.

WINDOW Trimming, crepe paper, etc., practical method. Learn and earn in 4 weeks. Division 19, Advance Displays, 1553 Madison, Chicago.

BECOME A landscape architect. Easy to learn by mail. Wonderful opportunity for money-making. Earn while you learn. Write for free opportunity booklet and details. American Landscape School, 805 Plymouth Bldg., Des Moines, Iowa.

MAKE Big money corresponding for newspapers. Sure-fire winner. Write, enclosing stamp. Cutler Publishers, Reading, Pennsylvania.

CHIROPODY Taught by correspondence. Evans School of Chiropractic, Montgomery, Alabama.

HOME Study courses leading to degrees: Arts and sciences, philosophy, education, law, letters, theology, psychology, engineering, chemistry, business and commerce. Many others. McKinley-Roosevelt University, Chicago.

GET U. S. government job—start \$105-\$175 month. Men-women, age 18-53. Are you eligible for eligibility test? Get our free questionnaire—find out. No obligation whatever. Instruction Bureau, 101, St. Louis, Missouri.

U. S. GOVERNMENT Positions. \$1700-\$1900 and up a year. Let our expert (former government examiner) prepare you for a position in the railway mail service, rural carrier, post office, customs and other branches. Write today for free booklet. Dept. 8, Patterson School, Rochester, N. Y.

STAMMERING SCHOOL

MASTER Perfect speech! Live healthy, normal, happy life! Free book tells you how. Write Lewis Institute, 12050 Woodward, Detroit, Mich.

CARTOONING—COMMERCIAL ART

HUNDREDS Making money sketching, duplicating. Experience unnecessary. Details free. Paisley, 421-C Kinloch Bldg., St. Louis, Mo.

CHALK Talks. Laugh producing program, \$1.00. Catalog free. Balda, The Cartoonist, Oshkosh, Wisconsin.

CARTOONING Course—30 lessons, 500 illustrations with drawing pens and pencils. \$1.00 complete. Scovell Studios, Box 610-P, Hollywood, Calif.

AMATEUR Cartoonists can earn \$35.00 weekly, spare time, duplicating cartoon advertisements. 3-M Syndicate, Argyle, Wis.

ADVERTISING AGENCIES

50% DISCOUNT—Complete advertising campaigns planned. Jones, 2299-B Colerain, Cincinnati.

INCH Display advertisement 30 magazines, year \$24. Wood's Popular Services, Atlantic City, N. J.

LEARN Advertising quickly at home. New easy practical plan. No text books. Interesting booklet free. Page-Davis School of Advertising, 3601 Michigan, Dept. 343-B, Chicago.

FREE—New Advertisers Rate Guide, 44 pages. Includes everything. Lowest rates. E. H. Brown Advertising Agency, 140 S. Dearborn, Chicago.

ADVERTISE Profitably: \$15 reaches 6,000,000 Sunday newspaper readers with 24 word ad. Newspaper, magazine rate-guide, free. Chicago Union Agency, 20 West Jackson, Chicago.

ADVERTISING Placed anywhere. Helpful, free service. Rate guide book free. Baker Advertising Agency, 189 W. Madison, Chicago.

FOR ADVERTISERS

35 WORDS Displayed \$5.00. Reach 210,000. Goodall Adv. Co., Box 1592, San Francisco.

SALES Letters, folders, circulars, advertisements and complete mail campaigns planned and written to produce "plus" profits for you. Write for folder or send details now. Raymond W. Walter, Box 626, Ridge-wood, N. J.

ADVERTISE: 24 Words in 250 newspapers \$10. Lists free. Advertising Service Bureau, 4650 Drexel, Chicago.

BUSINESS SERVICE

NEW York mail address. For business or personal purposes. \$2.00 monthly. 3 choice locations: (42nd St.-Times Square,) (5th Ave. Madison Square,) (Park Row-Broadway.) New York Mail Service, 15 Park Row, New York City.

ANY Information desired 25c coin up. Fred Klotz, Reading, Pa.

ONLY \$1.00 Monthly. Increase your business and prestige by making the Co-operative Inventors Building, 126 Lexington Avenue, New York, your permanent business office. No room number required on your stationery. Established 25 years.

ALL International legal matters. Lic. Victor Prieto, Mexican Attorney at Law, P. O. Box 122 M. Juarez, Mexico.

BRAND New technique in collecting bills. No "system" but modern cash-impeller. Adaptable to any business. Folder free. National Business Systems, 8 S. College, Akron, Ohio.

DELAWARE Charters; fees small; free forms. Chas. G. Guyer, 901 Market St., Wilmington, Del.

RUBBER STAMPS AND OFFICE SUPPLIES

SIGNATURE Stamp \$1.50. New type stamp. Self-inking. No separate pad. Adaptable for other uses. Write Evready Duplitemp, 132 West 46th Street, New York City.

CUSHION Mounted, one—two lines, 25c. Three 35c. Stamp Works, 814 Bradley, Peoria, Ill.

NAME, Address, 2 lines 25c; 3 lines 35c. Stamp Works, Auburn, Nebr.

TYPEWRITERS, DUPLICATORS, OFFICE DEVICES

STENCIL Duplicators. Show card printing machines. \$12.50 up. Write Genaco, Box 3643, Washington, D. C.

UNDERWOOD Typewriter, rebuilt, half price. General Sales, 3945 W. Polk, Chicago.

TYPEWRITER \$12. Multigraph, mimeograph, and other office machines. Write 816 Pruitt Bldg., 170 North LaSalle, Chicago.

INCREASE Business. "Excelligraph" rotary stencil, clay and film duplicators \$3.85 to \$37.50. Prints anything. Typewritten, penned, drawn, traced. Colors. Folder free. Pittsburgh Typewriter Supply, Suite 518, Pittsburgh, Pa.

NEW \$4.75 Automatic adding machine. Fully guaranteed. Bassett, 1458J Hollywood Avenue, Chicago.

PRINTING, MULTIGRAPHING, MIMEOGRAPHING, GUMMED LABELS

\$1.00 FOR 1000 Cards, 250 letterheads or 250 envelopes. Springer Printery, Miami, Oklahoma.

COMPLETE Printing service for you. Send today for latest price list and "Printed Word." Fay Company, 85 Columbia St., Newark, N. J.

500 PARCELOST Labels \$1.00—2 1/4 x 4 1/4 gummed. Dollar Printers, Ottawa, Illinois.

PERSONAL Stationery \$1. 200 sheets, 100 envelopes. Printed blue. Postpaid. Write name and address plainly, enclosing \$1. Progressive Printery, Walkersville, Maryland.

LETTERHEADS By "national prize winners"—New, modern, attractive stationery means more business for you. Small additional cost gets you the best. Write for designs and price list before you buy. Tucker Printing Company, New Philadelphia, Ohio.

COMPLETE Printing service. Expert workmanship. Thousand quality white, No. 10 envelopes, \$2.95 prepaid. Regal Printing Co., Plattsburg, Mo.

MIMEOGRAPHING—\$2.99 - 1000, illustrations. Universal, 4717 So. Compton, St. Louis, Mo.

500 LETTERHEADS, Etc., \$1.75. Cards \$1.00. Bradshaw, 3214-P Huron, Chicago.

250 LETTERHEADS \$1.00. Envelopes, statements likewise. Dollar Printers, Ottawa, Illinois.

QUALITY Printing—Copy submitted returned with lowest estimates. Community Press, Kewanee, Illinois.

QUALITY Printing. Lowest prices! Ro-Sa-Co, 172 West Ave., Stamford, Conn.

BETTER Labels for less. Samples. Labelers, 6618H Quimby, Cleveland, Ohio.

5000 ELEGANT Envelope slips, \$3.90 prepaid. Circulars, stationery, cards, folders, labels, low prices. Samples. Goodprint Harrisonburg, Va.

"NU-STYLE," 200 Sheets, 100 envelopes, \$1.00. Audrey Press, 1014 College, New York.

REASONABLY Priced—Catalogs, pamphlets, broadsides, circulars, factory, office stationery. Submit sample or dummy for quotations. Theo. Rozek & Co., 2511 Maypole Ave., Chicago.

ATTENTION, Printing buyers! Dollar Printers offer choice "business necessity" items—1,000 cards \$1.00; 500 parcelpost labels \$1.00; 250 letterheads, statements or envelopes \$1.00. Dollar Printers' dependable quality, workmanship, service. Established 1897. Rush orders to Dollar Printers, 1126-32 LaSalle, Ottawa, Illinois.

CHOICE—250 Letterheads, 250 statements, 250 billheads, 250 envelopes. Good quality, \$1.00. You'll want more. Lewis Press, Malvern, Ohio.

MODERNISTIC Quality printing. Reasonable. Samples. Messenger Press, Ballston Spa, N. Y.

100 WHITE Envelopes, 3 lines, 50c. Wilson, 24 Louisa, Binghamton, N. Y.

1000 LETTERHEADS Or envelopes \$2.50. Samples. Kressman, Washington, N. J.

BETTER Grade printing, reasonable priced. Free samples. Economic Press, Leonia, N. J.

500 LETTERHEADS Or envelopes, \$1.50. Blecher, 60 Elm, Milton, Penna.

1,000 CARDS \$1.00—Cardcrafters deluxe quality. Dollar Printers, Ottawa, Illinois.

GUMMED Labels: 1,000 printed, 1 1/4 x 20 words or less, 50c. JBS Company, Box 93, Holyoke, Mass.

SAVE Money on printed circulars, folders, booklets, etc. Samples free! Fantus, 523 South Dearborn, Chicago.

BOOK, Magazine, pamphlet and catalog printing done quickly at low prices. Our \$50,000 plant is always ready for service. The Meador Press, 470 Atlantic Ave., Boston, Mass.

2000 BUSINESS Cards neatly printed \$1.50. Atlas Distributing Co., 1814 Bedford Ave., Pittsburgh, Pa.

1000 BUSINESS CARDS, card case, \$1.50. Miller, Printer, Ambler, Pa.

PRINTING OUTFITS AND SUPPLIES

PRINT Your own cards, stationery, circulars, advertising, etc. Save money. Easy rules furnished. Print for others, big profits. Junior press, \$5.90; job presses, \$11, power \$149. Write for details. Kelsey Co., Y-11, Meriden, Conn.

BARGAINS, Presses, type. List 3c. Exchange D11 22 Orient, Meriden, Conn.

MAKE Cuts, zinc etchings, halftones, also molded rubber stamps and cuts. Cheap easy process. Andercamco, 12612 Greenwood Ave., Blue Island, Ill.

BARGAINS—Used presses, type. Send stamp. 159 Harvard, Cambridge, Mass.

NEW Type 29c font. Catalogue dime. National Type Company, Jackson, Mich.

HAND Press, type and complete printers' supplies. Advise equipment you need and we quote prices; or send stamp for catalog. P. Peiffer, 54-A; 6 Columbia St., Newark, N. J.

PRINT Your own circulars, envelopes, with home made press costing less than \$1.00. Illustrated instructions 10c. Carl Edquist, Odessa, Minn.

FOUR Sizes of six point or twelve point Gothic complete \$1.50. Fifteen cents brings wholesale printers price list to you, \$1.00 tweezer included free. Jay Allen, 18 S. Central Avenue, Chicago, Illinois.

PRINTING Presses, supplies, 3c for complete lists. Landis, Richland, Pa.

PRINTING Outfits—Presses, type supplies, type novelties. Send stamp for catalog. Model Press, York, Penna.

PATENT ATTORNEYS

INVENTORS: Send immediately for your copies of our new free books, "Patent Protection" and "Suggestions on Selling an Invention." Sixty-eight pages of interesting facts. They tell how patent laws protect you; kind of sketch or model needed; simple steps to take without cost; how successful inventors have secured financial assistance; show interesting inventions; illustrate important mechanical movements. With books we also send free Evidence of Invention form to help establish date of disclosure. Prompt service, reasonable fees, special deferred payment plan. Strictest secrecy. Thirty-six years' experience. Highest references. Write us today. The facts in our books are worth money to the man with a good invention. Turn immediately to page 27A, or Address: Victor J. Evans & Co., Registered Patent Attorneys, 400-L Victor Building, Washington, D. C.

A BETTER Deal for inventors; valuable manufacturing and sales suggestions combined with skillful patent protection. My fee to secure patent \$50.00. Trade-marks registered \$35.00. Copyright \$6.00. 22 years patent, engineering experience. J. J. O'Brien, 108 West 42nd, New York.

PATENTS—Before too heavy an outlay of time or money is made on an invention, a search of the Patent Office records should be made to determine as nearly as possible whether or not the same idea has been patented before. The cost of this search is small, while the value of the facts it uncovers is often considerable. We offer inventors and manufacturers a thorough, prompt, confidential search service—plus experienced counsel and assistance in every phase of Patent and Trade-Mark practice. Write for my free book containing valuable information relating to patent procedure. Clarence A. O'Brien, Registered Patent Attorney, 584 Adams Building, Washington, D. C.

PATENT Office searching. Experienced; graduate engineer. Low rates. A. A. Varela, 3440 - 34th Place, Washington, D. C.

PATENTS. Protect your idea by securing free "Proof of Invention" folder. Write E. E. Vrooman, 871 Woodward Building, Washington, D. C.

PATENT Lawyer: Charles F. Haden, 4309 Kansas Avenue, Washington, D. C.

PRACTICAL Inventions now saleable before patenting. What have you? Write Chartered Institute of American Inventors, Dept. 4B, Washington, D. C.

"INVENTOR'S Guide," 100 mechanical movements, free; advises on patenting, selling inventions. Frank Ledermann, Tribune Bldg., New York.

PATENTS. Booklet free. Highest references. Best results. Promptness assured. Watson E. Coleman, Patent Lawyer, 724 Ninth St., Washington, D. C.

PATENTS Procured; trade marks registered—preliminary advice furnished without charge. Booklet and form for disclosing idea free. Irving L. McCathran, 700A International Bldg., Washington, D. C.

L. F. RANDOLPH, 302-B Victor Building, Washington, D. C. Low cost. Book and information free.

PATENTS. Instructions "How to Establish Your Rights" and form, "Evidence of Conception"—sent free! Lancaster, Allwine & Rommel, 411 Bowen Building, Washington, D. C.

INVENTORS—Send for free booklet "Patent-Sense." Information based on 64 years experience. Lacey & Lacey, Dept. 5A, 635 F St., Washington, D. C.

ECONOMY For inventors. Write for booklet. Thos. H. Johnston, 635 F St., N. W., Washington, D. C.

FOR INVENTORS

PATENTS—Before too heavy an outlay of time or money is made on an invention, a search of the Patent Office records should be made to determine as nearly as possible whether or not the same idea has been patented before. The cost of this search is small, while the value of the facts it uncovers is often considerable. We offer inventors and manufacturers a thorough, prompt, confidential search service—plus experienced counsel and assistance in every phase of Patent and Trade-Mark practice. Write for my free book containing valuable information relating to patent procedure. Clarence A. O'Brien, Registered Patent Attorney, 585 Adams Building, Washington, D. C.

INVENTION & Finance periodical. Send for free copy. 5-G Beekman Street, New York.

UNPATENTED Ideas can be sold. We tell you how and help you make the sale. Particulars, with list of manufacturers and wanted inventions sent free on request. Write W. T. Greene, 944 Barrister Building, Washington, D. C.

LARGE List, inventions, buyers and wanted inventions, 25c coin. Albers Research Laboratory, 3880A Humphrey St., St. Louis, Mo.

TO Inventors: We are in the market to purchase a good patent, preferably in the automobile accessory line. Will purchase outright or on royalty basis. Purchasing Agent, 241 Front St., New York, N. Y.

HAVE You a sound, practical invention for sale, patented or unpatented? If so, write Chartered Institute of American Inventors, Dept. 4A, Washington, D. C.

SELL Your patent through a small classified ad in Popular Mechanics. Many inventors have found buyers in this way. Ask me for proof—I'll gladly send it to you. F. W. Johnson, Manager, Classified Advertising, 200 E. Ontario St., Chicago.

INVENTOR'S Universal Educator: contains 900 mechanical movements; 50 perpetual motions; instruction on procuring and selling patents and selecting an attorney, etc. Suggests new ideas. Price \$1.00 postpaid in U.S.A. Address Albert E. Dietrich, 511-B Colorado Bldg., Washington, D. C.

I SELL Patents. Established in 1900. Charles A. Scott, 773PM Garson Ave, Rochester, N. Y.

INVENTORS: "Making Inventions Pay," our 32-page illustrated book, mailed upon receipt of 3c postage. Crescent Tool Company, Dept. Z, Cincinnati, Ohio.

PATENTS. Low cost. Book and information free. L. F. Randolph, 302-C Victor Building, Washington, D. C.

INVENTORS: Send immediately for your copies of our new free books, "Patent Protection" and "Suggestions on Selling an Invention." Sixty-eight pages of interesting facts. They tell how patent laws protect you; kind of sketch or model needed; simple steps to take without cost; how successful inventors have secured financial assistance; show interesting inventions; illustrate important mechanical movements. With books we also send free Evidence of Invention form to help establish date of disclosure. Prompt service, reasonable fees, special deferred payment plan. Strictest secrecy. Thirty-six years' experience. Highest references. Write us today. The facts in our books are worth money to the man with a good invention. Turn immediately to page 27A, or Address: Victor J. Evans & Co., Registered Patent Attorneys, 401-L Victor Building, Washington, D. C.

INVENTIONS WANTED

WANTED—Ideas or products with national sales possibilities. Have big factory and national selling organization. Prefer items retailing under \$5.00. Will buy outright or pay royalties. Henry Flarsheim, Perfect Manufacturing Co., Cincinnati, Ohio.

SMALL Inventions wanted by manufacturers. I'll help you sell your invention. Stanley Hull, 7829 Euclid Avenue, Cleveland, Ohio.

INVENTIONS Wanted—Patented, unpatented. If you have an idea for sale, write Hartley's, Inc., Box 928-E, Bangor, Maine.

PATENTS FOR SALE

ATTENTION Mfrs. For sale or royalty basis, have adjustable bracket. Meritorious improved article, has many advantages and wide field. Paul Lisicke, Mansfield Depot, Conn.

UNPATENTED Autodynamic air compressor model for sale. William LeClaire, Harlowton, Montana, % Winnecook Ranch.

PAT. Pending. Wonder lever hack saw. Real money maker. Outright, royalty. F. Lorusso, 4909 Easton, St. Louis, Mo.

MANUFACTURERS Looking for new inventions should write W. T. Greene, 939 Barrister Bldg., Washington, D. C.

MANUFACTURING

MODELS, Dies, stamping at lower costs. Work guaranteed. Free estimates. Presto Manufacturing, 4044 Twentieth Avenue South, Minneapolis, Minn.

MANUFACTURERS Salesman. Patents introduced to the jobbers of New York. Edw. E. Brown, 2029 Colonial Ave., Bronx, N. Y.

PAPIER Mache articles wanted for manufacture. Send drawing or description for free estimate. Will also purchase ideas of merit or manufacture on royalty basis. Nu-Art, Inc., 5007 Hollywood Boulevard, Hollywood, California.

MANUFACTURING Dies and models made at low cost. J. J. O'Brien, Patent-Development Engineer, 106 West 42nd, New York.

MANUFACTURING, Models, dies, stampings, brasswork? Casting moulds. Stamp for catalog. Baums Metal Specialties, Kansas City, Mo.

INVENTIONS Manufactured in any quantity at low cost. Stampings, dies, models, etc. Estimates and free catalog. Crescent Tool Co., Dept. X, Cincinnati, Ohio.

MODELS AND MODEL SUPPLIES

BUILD Model Taylor "Cub"—America's safe airplane. 10c for 3-view scaled blueprint (10x15). Build a model "Cub" that flies. Send 10c for actual photograph of "Cub" in flight (8x10). Both for 15c stamps accepted. Taylor Aircraft Co., Bradford, Pennsylvania.

MODEL Makers—Brass, copper, fibre, steel and aluminum in all shapes. Also castings, gears, screws, fittings. Catalog 10c. Experimenters Supply House, Dept. P, Box 10, Station Y, New York.

MODEL Engines, castings and accessories catalogue 25c. Howardco, 2417 N. Ashland Ave., Chicago, Ill.

MODEL Makers! Device you make yourself. Cast in metal small parts for all kinds of models. Instructive, bonafide offer. 20c (coins) brings plans, information. Sta. "C," P. O. Box 50, Brooklyn, N. Y.

YACHT Fittings for Marblehead (50-800) and Class-A model yachts. Illustrated list free. A. J. Fisher, 1002-1 Etowah Ave., Royal Oak, Mich.

MODELMAKERS—Magazines edited just for you: The Modelmaker and The Model Railroader. Either, \$1.50 per year. Both, \$2.50 per year. Sample of either, 15 cents; both, 25 cents. Modelmaker Corp, Wauwatosa, Wis.

BRASS Gears and model supplies. Send for catalog. The Pierce Model Works, Tinsley Park, Ill.

MODELS—Your ideas developed into practical working models. 30 years' successful experience; thousands of satisfied customers. Confidential service guaranteed. Bank references. Send 3c postage for 32-page book—"Making Inventions Pay." Crescent Tool Company, Dept. Y, Cincinnati, Ohio.

MODEL Steam locomotive 1/4" scale. Easily made. Particulars, casting list, photo, 25c. Little Engines, Box 15, Wilmington, California.

SHIP Models—Build 18" Flying Cloud, Constitution or Galleon. All materials including full-sized plans only \$1.50 from Hancock, 323 Douglass Ave., Portsmouth, Virginia.

EVRAYS Engine catalog (No. 34) or supply catalog (No. 35) postpaid 20c. Evraymesco, 28 N. Clinton, Chicago.

PLANS, BLUEPRINTS, INSTRUCTIONS

ACCURATE Reproductions of plans, drawings, etc. New process slashes costs. No cuts required. Better, cheaper than blueprints. Send requirements for free estimate and samples. Kistler's, 215 West Eleventh, Los Angeles, Calif.

HOME CRAFTSMEN

COLORS—Fast drying. New crafts work finish. Send 3 cent stamp for color card list. Pyramid Supply Co., 139 Boulevard, Long Island City, N. Y.

FRETWORKING Patterns—20 instructive samples 20c. James Field, Colorado Springs, Colorado.

SEND 5c Catalogue, samples. Leathercraft Supply Co., Station "B," Long Beach, Calif.

MAKE Your own workshop; motor, lathe, drillpress, saw, planer, shaper. Complete specifications—\$1.00. Stark Engineering Co., PSS, Box 144, Erie Pa.

SIX Full sized lawn ornament prints. 25c coin. "Wes," Ward St., Saginaw, Mich.

AROMATIC Cedar lumber, sufficient for cedar chest forty inches long, for \$3.49, delivered east of Rockies. Sportwood, Iron-ton, Mo.

DIAMONDS, WATCHES, JEWELRY

JOIN Amateur Watchmaker's Club, 748 Fullerton, Chicago, Ill. Particulars 5c.

SEND Us your watch for thorough overhauling. Guaranteed job—only \$2.50 including return postage. Grossman's 4666 State St., Chicago.

FOR THE HOME

CLOCKS: Build your own grandfather's, banjo, shelf. Thousands built successfully. Some with beautiful chimes. Directions ten cents. Particulars free. Clock Company, Nicetown, Philadelphia.

HEATING AND VENTILATING

KITCHEN Range oil burners, quiet, safe, practical, thousands used. Bennett Company, Islip, N. Y.

BURN Cheap fuel. Pendleton's oil generators. A. Pendleton, 902 Hadley, Whittier, Calif.

TOBACCO

POSTPAID—2 Years old high grade red-leaf chewing, 10 pounds \$1.75, smoking \$1.40. Guaranteed. Curtis Rogers, Dresden, Tenn.

FOR MEN

TEN Doubleedge blades, sharpener, brush, soap, styptic. 69c value prepaid 35c. Variety Stores, Decherd, Tenn.

GENUINE Panama hats—Order direct from manufacturer in South America and save enormous difference. Write immediately. Carlos Palacio, Pasto (Narino) Colombia, S. A.

RAZOR BLADE SHARPENING

YOUR Razor blades sharpened like new. 1c each. Petter Wetterquist, Rockford, Ill.

FREE, Attractive vestpocket razor with 100 highest quality blue surgical steel doubleedge blades \$1.00 prepaid. Weiss, Box 153, Chicago.

TATTOOING

ENORMOUS Profits tattooing; get our free illustrated folder! Chicago Tattoo Supply House, 651A South State, Chicago.

TATTOOING Outfits, supplies, 1935 illustrated list. "Waters," 965 Put-nam, Detroit.

OLD GOLD WANTED

CASH For gold, teeth, jewelry, watches. High prices paid day shipment received. Satisfaction absolutely guaranteed or articles cheerfully returned. Information free. Chicago Gold Smelting & Refining Co., 357 Champlain Bldg., Chicago.

MAIL Us your discarded jewelry, gold crowns and bridges, watches, diamonds, silver and platinum. New high prices paid, remittance mailed immediately. Goods returned if our offer is refused. United Smelting Works, (The Old Reliable,) Backed by 50 years of experience. 39 So. State St., Dept. 71, Chicago.

FOR SALE—MISCELLANEOUS

DURABLE Rubber grips hold shirt down. Hold trousers up. Promote comfort—health—appearance! Money-back ten day trial. \$1.00 postpaid. Agents wanted. Shir-Tro-Grip, 600-C Roosevelt Building, Los Angeles.

SALE—Used 32 v. farm lighting plants. Radio Shop, Box 72-K, Luxemburg, Wis.

WANTED—MISCELLANEOUS

WANTED—Novelties, specialties. Paramount Agencies, 77 Victoria, Toronto, Canada.

CASH For used microscopes, binoculars, cameras, slide rules, drawing sets, surveying, scientific instruments, marine equipment. Highest prices paid day shipment received. Satisfaction guaranteed or shipment cheerfully returned. Elman's, 2302 Van-Buren, Chicago. We repair microscopes, transits.

PERSONAL

POWER—Health—Confidence, attractive personality, win friends, banish fear, nervousness, inferiority, bashfulness. Learn secrets of health and happiness. "The Secret Place," 54 pages. Amazing book. Only 25c. 3c stamp. Dr. J. J. Smith, Box 71-M, Stoneham, Mass.

GRAGO, Hair color restorer, 100 applications for \$1.00. J. S. Kaufman, Ph. G., 519 Main St., Houston, Texas.

EXPERT Assistance religious, philosophical problems. Write fully. Enclose \$1.00. Leroy Gifford, Newark, Delaware.

MISCELLANEOUS

CASH Income daily silvering mirrors at home. Plating autoparts, tableware, etc. Combination outfit. Write Sprinkle, Elater, 288, Marion, Indiana.

CUTS—Make them yourself. Simple, inexpensive etching process. Information free. Hughes Products, 68 Miami, Terrace Park, Ohio.

ARTISTS—Many money making stunts 10c. Straley, 13 1/2 Main, Springfield, Ohio.

SMALLEST Ivory elephants \$1, ivory paintings \$5, coins Cabul silver (3) \$1, stamps Cabul 50 \$2. Ponchaji, Wimbridge, Bombay 7, India.

18c FLASHLIGHT. Without battery, dime. Electric Game Co., Holyoke, Mass.

AMERICAN History rhymed 25c. Logan, 253 E. Market, York, Pa.

WHOLESALE Supply sources, half million items. 10c. International Agency, Cincinnati.

CUTS Anybody can make. Zinc etching process. Specimens, particulars, testimonials, for stamp. J. C. Day, Windfall, Ind.

PROTECT Your keys! Your name, address stamped on metal identification tag. 25c. Key ring included. Agents wanted. Irvin Buschkowsky, 508-R Oak, Chaska, Minnesota.

FREE Plans. Build your own treasure finder. Cloughart, Grayling, Michigan.

MUCILAGE-PENCIL. Newest, most economical adhesive for home, office and school. Pencil in handy sanitary container. One dime. E. G. Glidden, 80 Elder, Schenectady, N. Y.

TREASURE Seekers—Make your own gold finders. Wyss, 104 1/2 Frances, St. Joseph, Missouri.

SWAPPER'S Friend, R4, Saline, Michigan. Interests swappers, collectors, sportsmen. 50c year, sample 10c.

ELECTRIC Or gasoline portable lamp kills insects automatically, indoor or outside. \$1.75 up. Literature free. Sauer Bros., East Oakland, California.

BRONZE Tablets, desk plates, wall plates, memorials, grave markers. Bronze, brass and aluminum casting. Wandkey Pattern & Foundry Co., Anderson, Ind.

GARDENING, Flower growing, lawn making, landscaping, house repairing, etc. Send for free list of books on. Popular Mechanics Press, Room C33, 200 E. Ontario St., Chicago.

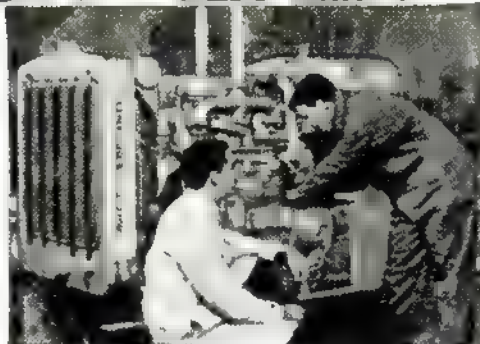
CAN You use tools? Build your own perfected treasure finder. High efficiency assured. This one really works. Full details free. Famous booklet "Successful Prospecting," mailed for only thirty cents. Write. The Goldak Co., Western Pacific Bldg., Los Angeles, Calif.

HOW To reproduce photos, drawings, etc., without a camera. Cheap, easy method. Unlimited opportunities. Complete for 50c. P. J. Bender, 492 Manitoba Ave., Winnipeg, Canada.

LEARN THE BEST PAY TRADES



**Demand for
Auto-Diesel
Experts Increases**

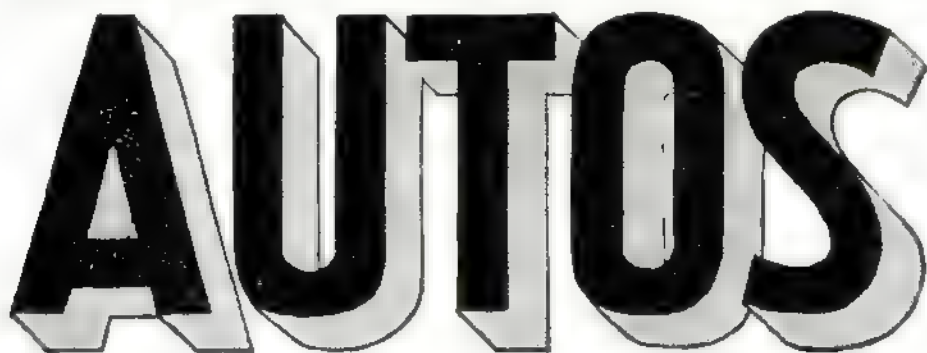


TRAIN AT NATIONAL SCHOOLS

Diesel operation and repairing calls for trained men. Everywhere you hear Diesels discussed and you can see the application of Diesels in trucks, tractors, trains, boats, busses, airplanes, power shovels, etc. To qualify for a good job you must first become trained. In the National Schools in Los Angeles you receive the most practical training under the guidance of expert instructors who teach you by proven methods.

Learn in Los Angeles

Not only do we instruct you in all branches of Diesel training, but also give you complete Auto Training, qualifying you for jobs in garages, service stations, factory branches and transportation departments. Here in Los Angeles you receive instruction in one of the most modern trade schools.



Opportunities for Good Jobs

National's method of training you is most comprehensive. You receive two complete courses for the price of one—Autos and Diesels. We offer full training in Auto Repair which is essential to all Diesel operators. Upon graduation you have a complete understanding of, and experience in, the operation of gas, gasoline, butane and Diesel engines.

A Fortune in Brand New Equipment

There is absolutely no dummy equipment at National. Tens of thousands of dollars have been recently invested in brand new equipment which you will actually work on during your training period. We have just completed enlargement of our Diesel School, tripling its capacity. Equipment includes Diesel and gas engines of most modern design, testing equipment, late model autos, machine tools, etc.

Oldest, Largest Trade School in West

Established 1905. More than 30,000 successful graduates. National Schools is a million-dollar institution, occupying a magnificent building in Los Angeles.

Earn Room and Board While Learning

The majority of National students earn room and board while learning. With limited finances you can enroll. We assist students to obtain part-time jobs. Coach R. R. fare allowed to L. A.

Mail Coupon for Free Book

This book gives full information regarding the combined Auto and Diesel Courses. Profusely illustrated.

NATIONAL AUTOMOTIVE SCHOOLS

Dept. 10-PMA, 4000 So. Figueroa St., Los Angeles

NAME _____

ADDRESS _____

CITY _____

STATE _____

Qualify for
These Good
Jobs

Diesel Mechanic; Fuel Injection Expert; Diesel Service Man; Diesel Trouble Shooter; Auto Mechanic; Auto Electrician; Battery Expert; Carburetor Expert, etc.



When writing please mention Popular Mechanics

We Want to SELECT RELIABLE MEN

WILLING TO QUALIFY FOR POSITIONS IN
**AIR CONDITIONING AND
ELECTRIC REFRIGERATION**

Big pay opportunities for young men in America's two newest, fastest-growing businesses. Men who can qualify as installation and service experts on all kinds of commercial and domestic Air Conditioning and Electric Refrigeration equipment can command large salaries. Complete training offered men aged 21 to 40 with fair education, mechanically inclined and now employed at least part time. Character references required. Do not reply unless you are willing to devote some spare time to training. Write giving age, education and present occupation.

UTILITIES ENGINEERING INSTITUTE

Established 1927

400-410 N. Wells St.

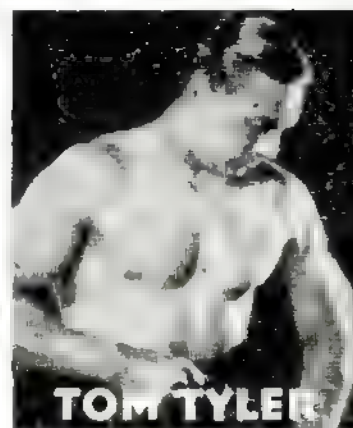
Dept. PM-10

Chicago, Ill.

BOOKKEEPING ACCOUNTING

Modern, Complete.

ALL FIRST PRIZE Gold Medals won by our students at 1933-34 World's Fair. Course prepared by nationally known C.P.A. Previous knowledge unnecessary. Easy to understand. Send now for FREE details. EDUCATIONAL SERVICE BUREAU, 646 N. Michigan Ave., CHICAGO, ILL.



It's easy to have
BIG MUSCLES
like these **STARS**
and **CHAMPIONS!**

(Western Star) One of World's Strongest Men
Follows Our System

★ **CLARK GABLE**
★ **JACK DEMPSEY**
★ **MAX BAER**
★ **GARY COOPER**

(M-G-M STAR)

We've trained and conditioned these stars and champions and numerous other headliners of the ring and screen.

(Paramount Star)

who says: "Your System is just like having a
Physical Trainer in your home."

★ For many years Terry Hunt and Gus Wilson, World Famous physical culture experts, have kept Champions and Movie Stars in perfect condition. NOW!—they offer this identical method to YOU

FREE! 2 year membership Hollywood Studios of Physical Culture... Gives you free consultation and advice on your physical development from Terry Hunt, Gus Wilson and staff. Worth \$25.00. Included FREE with STARCHAMP training system. ALL FOR \$2.75!

—to every man who envies and desires a manly "two-fisted" physique! An Amazing System! No pills—no silly diets. Simple, complete instructions. Step-by-step method guaranteed to give you a healthy, manly body and muscular development immediately. Mail Coupon today. We'll send the System AT ONCE! Pay Postman \$2.75, plus a few pennies postage. This is the total price—nothing else to buy. Start now to enjoy a new lease on life and health! If you care to send cash with order, we will prepay postage charges.

DON'T WAIT! MAIL COUPON NOW!

TERRY HUNT * GUS WILSON
Hollywood Studios of Physical Culture
Dept. 16, 6715 Hollywood Blvd., Hollywood, California.
I want your System. I understand this is the IDENTICAL System you use for Champions and Stars.

If not satisfied after five days' trial I can return System and get my money back without question.

I will pay Postman \$2.75, plus postage on delivery.

NAME.....

ADDRESS.....

CITY.....STATE.....

(Print Plainly)

NOTE: When ordering outside the United States, cash MUST be sent with order.

LET THESE GREAT BOOKS
HELP YOU TO

Start Your Climb!

*"the Man
who KNOWS
is the Man who WINS"*

Easy to train yourself! These
books have helped thousands—

AIR CONDITIONING
Live Field; Great
Future.....\$3.50

AUTO ENCYCLOPEDIA
The Famous Dyke's La-
test Edition.....\$6.00

110-V. GENERATORS
Made From Old Auto
Units.....\$1.00

BIRD HOUSES
Build to Sell; Easy De-
signs.....\$1.00

BOAT BOOK
Power, Sail, Rowing,
Paddle Plans.....\$3.00

BOY MECHANIC
Hundreds Things Boys
Can Make.....\$2.00

BUILT-IN FURNITURE
Take Orders, Make
Money!.....\$2.50

CARPENTRY HANDBOOK
336 Practical Short-
Cuts.....\$1.50

CHEMISTRY, PRACTICAL
Make Hundreds Things
Daily Use.....\$2.00

CONCRETE WORK
173 Uses Described,
Pictured.....\$1.00

DIESEL HANDBOOK
New! Latest Informa-
tion.....\$5.00

DOG TRAINING
Home, Stage, Movies,
Etc.....\$1.50

ELECTROPLATING
Modern Practice Includ-
ing Nickel, Zinc, Cad-
mium and Chro-
mium.....\$2.25

FARMERS' BOOK
861 Kinks for Field,
Home.....\$1.00

V-8 FORDS
Also "A" and "B"
Models. All New!.....\$2.50

FORMULAS
10,000 Money Mak-
ing.....\$4.00

FROG INDUSTRY
New! Raise and Sell.
Profits!.....\$2.00

FURNITURE MAKING
Tools, Materials, De-
signs.....\$2.50

LATHE WORK (Metal)
Drilling, Threading....\$1.00

LOCOMOTIVE
Folding Chart Shows all
Parts.....\$1.00

LOG CABINS
Easy Plans; Build for
Profit. Value!.....\$2.50

MATHEMATICS
Easy Guide for the Prac-
tical Man.....\$1.50

MECHANICAL DRAWING
Learn Drafting; Good
Salaries.....\$1.00

MONEY MAKING IDEAS
1000 Spare Time.....\$1.00

OCEAN LINER "EUROPA"
Atlantic Speed Queen;
Charted.....\$1.00

PLUMBING
500 Facts Every Home-
owner Should Know.....\$1.50

POULTRY
Breeding, Management.
Protect Your Profits!.....\$2.00

PRECIOUS METALS
Identify—Buy—Sell.
Only book on.....\$1.00

**PROSPECTORS' HAND-
BOOK**
How to Mine, Appraise,
Equip.....\$3.00

RADIO
Amateurs' Handbook;
Circuits, Repairs,
Etc.....\$1.00

RADIO SERVICING
Profit by Knowing
Costs, Kinks, Etc....\$4.00

REFRIGERATION
Electric, Gas, Bea
Service Expert.....\$4.00

**REWINDING ELECTRIC
MOTORS**
Fractional Sizes. Value!.....\$2.50

SHIP MODEL
Entire Text, Famous
"Sovereign" of 1637.....\$1.00

SHOP NOTES LIBRARY
5 Vol. 2000 Wonderful
Shop Ideas.....\$2.50

STAMP ALBUM
Modern. 400 Pages...\$1.00

STEEL SQUARE
How to Figure Angles
of Rafter, Roofs, Etc.....\$1.00

STORAGE BATTERIES
New! How to Build,
Repair, Charge.....\$2.50

TOYS
For Amusement or Prof-
it. Saleable Designs.....\$1.50

UPHOLSTERY
Always a Big Market.
Start Own Business.....\$1.60

WELDING ENCYCLOPEDIA
All Methods; Hard Jobs
Made Easy.....\$5.00

WIRING
Approved Economy
Methods for Homes,
Buildings.....\$2.50

WOOD TURNING
Woods, Tools, Methods;
Practical Teacher....\$1.50

WRIGHT ENGINE
Chart of "Whirlwind";
All Parts.....\$1.00

Books sent C.O.D. anywhere in U.S.

Just check the books you want, write your name and address be-
low, and mail the advertisement. It is your order blank. When
postman hands you books, pay him the price and few cents postage.
If you send remittance when ordering, please include 10 cents per
book extra for postage. Write for information about books on
other subjects you are interested in.

Name.....

City.....State.....

Address.....

Mail to Popular Mechanics Press,
Room O5—200 East Ontario St., Chicago, Ill.

When writing to advertisers please mention Popular Mechanics



Become an Expert Accountant

The Profession That Pays

The demand for skilled accountants—*men who really know their business*—is increasing rapidly. The new national and state legislation is requiring of business—both big and small—much more in matters relating to Auditing, Cost Accounting, Business Law, Organization, Management, Finance. Men who prove their qualifications in this important field are rapidly promoted to responsible executive positions—given an opportunity to earn real salaries. The range is from \$3,000 to \$15,000 a year—even to higher income-figures.

Send for Free Book—

"Accountancy, the Profession that Pays"

Why let the other fellow walk away with the better job, when right in your own home you can equip yourself for a splendid future in this profitable growing profession?

Preliminary knowledge of bookkeeping is unnecessary. Our free book on accountancy fully explains how we train you from the ground up, or from where you now are, according to your individual needs. Low cost; easy terms.

The facts about the new LaSalle training in Accountancy and the opportunities in this highly profitable field are clearly outlined in a 64-page book which LaSalle will send you free.

The man in earnest to get ahead will find this coupon a most profitable aid to progress. If you have the urge and the will to increase your income, clip and mail the coupon NOW.

LaSalle Extension University

The school that has trained over 1,200 C. P. A.'s

Dept. 1064-HR

Chicago

I would welcome details of the new opportunities in accounting, together with copy of "Accountancy, the Profession that Pays," without obligation.

☐ Higher Accountancy

Other LaSalle Opportunities:

LaSalle opens the way to success in every important field of business. If interested in one of the fields below, check and mail.

- | | |
|---|---|
| ☐ Business Management | ☐ Law—Degree of LL.B. |
| ☐ Modern Salesmanship | ☐ Commercial Law |
| ☐ Traffic Management | ☐ Modern Business Correspondence |
| ☐ Railway Accounting | ☐ Stenography—Stenotypy |
| ☐ Industrial Management | ☐ Expert Bookkeeping |
| ☐ Modern Foremanship | ☐ C. P. A. Coaching |
| ☐ Effective Speaking | ☐ Business English |
| ☐ Credit and Collection Correspondence | |
| ☐ Practical Accounting and Office Management | |

Name.....

Present Position.....

Address.....

BE A TRAINED

AUTO-DIESEL

Expert

Diesel Power for trucks, busses, tractors, farm power and lighting plants opens rich, new fields of opportunity for Diesel-trained men.

Good jobs, at good pay, await those who prepare NOW to get in on the ground floor of this fast-growing industry. And with combined Auto-Diesel "Job-Way" Training, brought to your home by the pioneer automotive home-study school, you can train for success in this new field without leaving your present position while learning.

"Job-Way" Training is Practical, Complete, Modern

Our modern, revised Training covers every new development in the operation and repair of present day gasoline and Diesel automobiles, trucks, tractors, etc. And the same practical, easy-to-learn method that has started thousands of our graduates toward success, will qualify you in a few short months for a better job, or a profitable repair business of your own.

New Auto-Diesel Course Included at No Extra Cost

Students enrolling now for our regular Automotive course get our complete new Auto-Diesel course AT NO EXTRA COST. Send Coupon today for details of our "Earn as You Learn" Training plan, backed by fifteen years' success in the automotive training field.

Earn as You Learn—Two Motor Testers Free

Just now, we are also including complete, valuable motor testing equipment, to assist your training and enable you to begin earning extra spare-time money soon after you enroll.

AUTO-DIESEL BOOK FREE

Men without previous auto experience or special education quickly master "Job-Way" Training and become skilled experts in every branch of auto work. Mail the coupon today for Big FREE AUTO-DIESEL Book and complete facts about Free Employment and Consultation Service. No obligation!

MOTOR INSTITUTE OF AMERICA
2140 Lawrence Ave., Dept. KD-11, Chicago

MOTOR INSTITUTE OF AMERICA
2140 Lawrence Ave., Dept. KD-11, Chicago, Ill.

Without obligating me, send Free Auto-Diesel Book with all facts about "Job-Way" Home Training and Special Offer.

Name.....

Address.....

City..... State.....

MAIL
COUPON
FOR
FREE
BOOK



There's Quicker, Bigger MONEY for YOU-in POULTRY

Earn \$1,000 to \$2,500 a Year or Have a Business of Your Own!



Whether you want a job at good pay or a highly profitable business of your own—the Poultry Industry offers you more than any other. There's a shortage of poultry meat and eggs—a shortage of trained poultrymen. I'll train you quickly at home—to fill a good job in Poultry—and our FREE Students' Employment Dept. will help you get one!

Spare Time or Full Time YOU CAN Cash-In BIG No matter where you live—city, town or country—or what you do now, my proved methods will assure your success right from the start. I'll help you make from \$1,000 to \$2,500 a year and UP! And, if you choose to start your own business, I'll show you how to make your tiny investment multiply itself automatically. What I've done for thousands of others—I can do for you.

FREE Book Shows the Way to Big Pay and BIG Profits

Mail coupon below TODAY—for my Big NEW FREE Book, "How to Raise Poultry for Profit." My forty years of experience are yours. The Poultry Industry needs YOU. You need my book. Get it—and get in line for the BIG Money that's waiting for you in POULTRY.



Mail NOW for FREE Book

NATIONAL POULTRY INSTITUTE, Dept. 30-A,
Adams Center, N.Y., Attn: Harry M. Lamon, Pres.

Dear Mr. Lamon: Send me your FREE Book, "How to Raise Poultry for Profit." I want to know more about my opportunity to make \$1,000 to \$2,500 a year, spare or full time.

Name.....

Address.....

WRITE for
CATALOG
of NEW and
USED
BOOKS

SAVE
1/4 TO 1/2 ON
TEXT
and REFERENCE
BOOKS

Used books serve as well as new.
Over One Million Volumes
Established 1902

COLLEGE BOOK COMPANY
F. C. LONG Pres. — Dept. PM COLUMBUS, OHIO
WE ALSO BUY BOOKS

CIVIL SERVICE

VALUABLE INFORMATION FREE
COLUMBIAN CORRESPONDENCE COLLEGE
WASHINGTON, D. C.

PHOTO-ENGRAVING LEARN IT AT HOME



We Furnish all equipment and materials including large photo-engraving camera complete with lamps, lens and screen. When you have finished the course you can establish a good paying independent business with the equipment furnished or work for others at a big salary. Photo-Engraving offers greater opportunities today than any other industry. Every picture in this issue of Popular Mechanics was engraved by the process we teach you. Earn good money while learning. Write today for our new illustrated catalog which was engraved on equipment such as we furnish. You will not be obligated in any way by writing.

A copper plate to print above picture size 8 by 10 inches sells for \$15.37.

Aurora School of Photo-Engraving, Dept. 1105, Aurora, Mo.



EARN MONEY AT HOME

Bi-Monthly describes all kinds of up-to-date plans for a business of your own. Home extra money plans, local occupations, home mfg., enterprises, formulas, mail order, advertising, writing for profit, books, duplicators, outdoor opportunities, mats from old tires, plastic novelties, success secrets, agent plans, workshops, backyard plans, homecraft, preparations, unusual ideas, wholesale supply. 36 pages. Six months trial 10c.

HOME INDUSTRIES, BOX 84, IRVINGTON, NEBR.

Profit from Books

Popular Mechanics Press specializes in supplying books on any subject. Look over this list. Check the books you want, and mail this advertisement as your order blank. Write for information about books on any special subject you may be interested in.

AIR CONDITIONING SERVICE MANUAL
Small Unit Apparatus...\$5.00
ARMATURE WINDING and Motor Repair.....\$3.00
AUTO RACING
How to Build Dirt Track Racers.....\$1.00
AUTO REFINISHING
Duco With Spray Gun...\$1.50
BRICKLAYING
Plain and Fancy.....\$1.50
CAMPS AND LOG Cabins (Building).....\$2.00
CARBURETORS (All Makes)
New, Revised Edition...\$2.50
CHEMICAL MAGIC
Experiment, Entertain, Mystify.....\$1.00
DANCE
Learn at Home Without Music or a Partner...\$2.00
DRAWING
Freehand and Perspective.....\$1.50
DRY CLEANING (Practical) and Dyer.....\$3.00
ENGINEERS' VESTPOCKET Reference Book.....\$1.50
FURNITURE REPAIRING
Finishing and Decoration.....\$3.00
HYPNOTISM
How to Become an Expert.....\$2.00
INVENTION, YOUR
How to Protect and Merchandise.....\$1.50

LANDSCAPE GARDENING
Practical.....\$2.50
LEATHER MAKING AND Home Tanning.....\$1.00
LOCKSMITHING
Revised Edition.....\$2.00
MONEY MAKING FORMULAS
15,000 Practical.....\$5.50
MUSHROOMS
Raise for Market.....\$1.75
NEON SIGNS
Only book on. New...\$3.00
PATTERN MAKING
Excellent New Book...\$1.50
PLASTERING
Best Instruction Manual.....\$1.25
RADIO PHYSICS COURSE
New edition. Everything about Radio from A to Z.....\$4.00
REFRIGERATION SERVICE
Manual (All Makes).....\$5.00
RUBBER ARTICLES
How to Make.....\$2.00
SHEET METAL
Construction Work...\$2.00
STAMP COLLECTING
Why and How.....\$1.50
Steam Engineer's License
How to Obtain.....\$2.00
TAXIDERMY, HOME
Mount Trophies Profit, Pleasure.....\$1.50
WROUGHT IRON WORK
Practical.....\$1.35

Books sent C. O. D. anywhere in U. S.

Just check the books you want, and mail the whole advertisement. It is your order blank. When postman hands you books, pay him the price and few cents postage. If you send remittance when ordering please include 10 cents per book extra for postage.

POPULAR MECHANICS PRESS, Room P-10, 200 East Ontario St., Chicago, Ill.

PATENTS

Booklet Free

Highest References

Promptness Assured

Best Results

Send drawing or model.

ALL BUSINESS GIVEN PROMPT AND PROPER ATTENTION

Listed Patent Lawyer in the latest editions of the Rand-McNally Directory of Bankers and Bank-Recommended Attorneys, published by Rand-McNally & Co., Chicago, Ill.; The Baggott & Ryall Directory of Guaranteed Attorneys, published by Legal Directory Corporation, Boston, Mass.; Flugel's Law List, published by Legal Directory Publishing Co., St. Louis, Mo.; American Lawyers Annual, Cleveland, Ohio; Bankers Service Legal Directory, Bankers Service Co., Boston, Mass.; Eyre's Law List, 9 Park Place, New York City, and the Central Guarantee Co., Bankers and Lawyers Directories, Empire State Bldg., New York City.

WATSON E. COLEMAN,
REGISTERED PATENT LAWYER

Victor Building, 724 Ninth Street, N. W.
WASHINGTON, D.C.

INVENTORS PATENT YOUR IDEAS

SEND FOR FREE BOOK

HOW TO OBTAIN A PATENT

Written by a Former Member of the Examining Corps (1922-24) of the U. S. Patent Office. If you want to profit by your idea, you should take steps to apply for a U. S. Patent at once. Your first step is to get this Free Book. This interesting illustrated book contains valuable information you should have. It tells you fully how to obtain a patent on your idea in the quickest way. With this Free Book you will also receive a "Record of Invention" form on which you can easily record your idea. Personal and Confidential Service: Your case will be personally handled only by a Registered Patent Attorney who is also a Former Member of the Examining Corps of the U. S. Patent Office. All communications confidential. MAIL COUPON TODAY for FREE PATENT BOOK and RECORD OF INVENTION Form.

CARL MILLER

REGISTERED PATENT ATTORNEY
FORMER MEMBER EXAMINING CORPS U. S. PATENT OFFICE

1638 Woolworth Bldg., Dept. 105A, New York City
MILLER BUILDING, Dept. 105A, WASHINGTON, D. C.
Please send me your Free Book, "How to Obtain a Patent," and your "Record of Invention" form.

NAME.....

ADDRESS.....

don't WORRY

Why put up with years of needless discomfort and worry? Try a Brooks Automatic Air Cushion. This marvelous appliance permits the opening to close, yet holds rupture securely, comfortably—day and night.



ABOUT

RUPTURE

Thousands report amazing results. Light, neat-fitting. No hard pads, metal girdle or parts to chafe or gouge. Patented in U. S. and 13 foreign countries. Try one 10 DAYS WITHOUT A PENNY'S RISK. You'll be delighted. Free book on Rupture and convincing facts mailed postpaid in plain sealed envelope. Address **BROOKS COMPANY, 111C State St., Marshall, Mich.**

PATENTS—TRADE MARKS

All inventions submitted held confidential and given personal attention by members of the firm.

Form, "Evidence of Conception" and instructions, "How to Establish Your Rights"—FREE!

LANCASTER, ALLWINE & ROMMEL
Patent Law Offices

412 Bowen Bldg.

Washington, D. C.

Inventions Wanted

Patented or Unpatented

Increased interest now being shown in sound, practical inventions by our manufacturer-clients. What have you?

Chartered Institute of American Inventors

Dept. 4, Barrister Building Washington, D. C.

World's Largest Organization of Inventors. Est. 1924.

INVENTORS

who derive largest profits know and heed certain simple but vital facts before applying for patents. Our book, Patent-Sense, gives those facts; sent free. Trade Marks—Copyrights. **LACEY & LACEY, Est. 1869, 635 F St., N. W., Dept. 5, WASHINGTON, D. C.**

INVENTORS Be Sure to See Page 27A

No JOKE TO BE DEAF



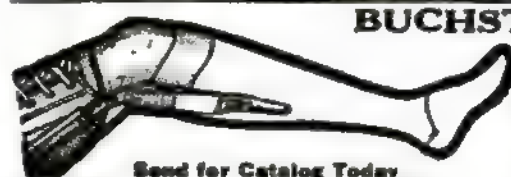
—Every deaf person knows that—
Mr. Way made himself hear his watch tick after being deaf for twenty-five years, with his Artificial Ear Drums. He wore them day and night. They stopped his head noises. They are invisible and comfortable, no wires or batteries. Write for TRUE STORY. Also booklet on Deafness.



THE WAY COMPANY

729 Hofmann Bldg.

Detroit, Michigan



Send for Catalog Today

BUCHSTEIN'S FIBRE LIMB

is soothing to your stump—strong, cool, neat, light. Easy payments. Braces for all deformities. Agents wanted.

D. BUCHSTEIN CO.

810 3rd Ave., So., MINNEAPOLIS, MINN.

Information on any book free. Write Popular Mechanics Press, Chicago, Ill.

To PROTECT YOUR INVENTION—Use this coupon, NOW

Delays are dangerous and may be very costly. My personal service assures prompt action, strict confidence, and a minimum of expense. I suggest that you send me a model or drawing, or sketch and description of your invention, and \$5.00. I will make a search and report

promptly as to its patentability and send you a copy of my 72-page booklet. Or, if you prefer to read my booklet first, mail the attached coupon at once. I will also send my "Record of Invention" form. (Over 37 years experience as a Registered Patent Attorney.)

L. F. Randolph, 302-D Victor Bldg., Washington, D.C.

Please send me at once, free of charge, your 72-page booklet and "Record of Invention" form.

Name.....

Address.....

A PERSONAL CONFIDENTIAL PATENT SERVICE—

Law!

LEARN AT HOME

Are you adult, alert, ambitious, willing to study? Investigate LAW! We guide you step by step—furnish all texts, including 14-volume Law Library. Training prepared by leading law professors and given by members of bar. Degree of LL. B. conferred. Low cost, easy terms. Send NOW for Free, 64-page "Law Training for Leadership."

LaSalle Extension University, Dept. 1064-L, Chicago

A MONEY MAKING CARTOON COURSE \$2.00 BY THE FAMOUS CARTOONIST NICK NICHOLS POST PAID

Former Cartoon Instructor of Chicago Academy of Fine Arts
Art Director for Associated Editors' Newspaper Syndicate
Creator of—The Adventures of Peter Pen (the Bottle Imp)—
Just Supposin'—Cartoonist of the Air—Radio Comics, etc.
THIS PORTFOLIO CONTAINS—Twenty Lessons—Hundreds of
Drawings—Tells You All My Secrets—How to Draw Funny Pa-
pers—Comic Strips—Pretty Girls—etc. HOW and WHERE to
MARKET YOUR DRAWINGS.

Send \$2.00, Currency or Money Order
NICK NICHOLS SCHOOL OF CARTOONING—NEWSPAPER SYNDICATE
TIMES BLDG. SUITE 1120 CHICAGO, ILL.

RADIO ENGINEERING, broadcasting, avi-
ation and police radio, servicing,
marine and Morse telegraphy taught
thoroughly. Nine months' engineering
course equivalent to three years' college radio work. School estab-
lished 1874. All expenses low. Catalog free.
Dodge's Institute, Ada St., Valparaiso, Ind.

MODERN RADIO SERVICING by GHIRADI & FREED



JUST RELEASED! Greatest book
ever published on the art of Radio Serv-
icing. Hundreds of practical facts on
the most up-to-date methods of radio
servicing—construction and operation
of all kinds of 1935 radio test equip-
ment; servicing of all forms of receivers;
auto radio, all wave, high-fidelity,
locating and eliminating noise and in-
terference; special servicing problems;
construction and use of new Cathode
Ray Oscillographs for aligning super-
hets, thorough explanation of AVC and
QAVC circuits; tested advertising and
merchandising tips on getting more
money out of your business, etc.—
everything practical, hundreds of pages
full of tips you can put to use today.
Written in clear, simple style—pro-
fusely illustrated with over 700
diagrams, photographs, charts, etc.

1300 pages—cloth. PRICE.....\$4.15 Postpaid

FIELD SERVICE DATA and ANSWER BOOK Supplement to MODERN RADIO SERVICING by GHIRADI & FREED

A handy reference data book, with flexible binding, for service men to
keep in their tool kits. Contains invaluable servicing data, such as—
listing of intermediate frequencies of all superhets; comprehensive
Trouble Shooting Table of Symptoms and Remedies for troubles in
over 500 models of broadcast and all-wave receivers; remedies for
ignition interference in various makes of cars, with electrical diagrams
of all cars; complete tube charts; wire tables; RMA Color Codes; and
many other useful charts, diagrams and tables.

PRICE.....\$1.60 Postpaid
SPECIAL OFFER: Supplement Book in combination with
MODERN RADIO SERVICING—\$5.25 Postpaid.

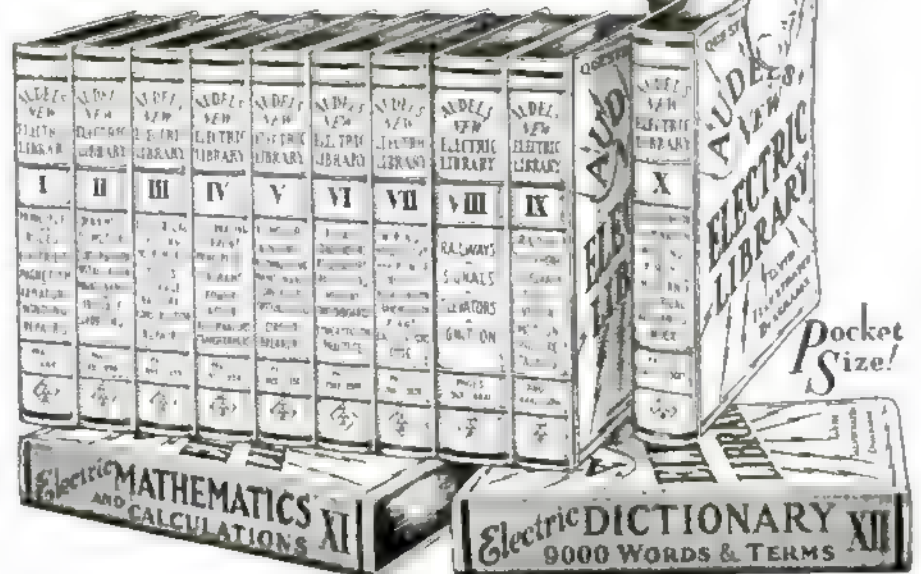
POCKET TROUBLE SHOOTER "GADGET" by GHIRADI & FREED

Here is an ingenious "gadget" that is one of the cleverest little serv-
icing helps you ever saw. Consists of a series of 6 cards eyeletted at one
corner and indexed at the edges. According to the trouble symptom
detected by the service man, the "gadget" lists according to source,
275 possible troubles that may occur in a receiver. Six general types
of symptoms are shown—Hum; Weak; Noisy; Inoperative (no
signals); Intermittent Reception; Fading; Oscillation and Distortion.
PRICE.....30c Postpaid

Sent by mail C. O. D. in U. S. if preferred or anywhere upon receipt of price
Popular Mechanics Press, Room P10, 200 E. Ontario St., Chicago, Ill.

NEW ELECTRIC LIBRARY

\$1.50 A VOLUME



WHAT ELECTRICIAN WANTS TO EVERY KNOW!

is easily found in AUDEL'S NEW ELECTRIC LIBRARY. Electricity made simple
as ABC. Up-to-date, trade dope for the expert and ALL electrical workers.
Questions, answers, diagrams, calculations, underwriter's code, design, con-
struction, operation and maintenance of modern electrical machines and
appliances FULLY COVERED.

All available at small cost, easy terms. BOOK-A-MONTH service puts this
NEW information in your hands for 6c a day. You can start your subscription
with any volume. Write TODAY for electric Folder and FREE TRIAL offer.

THEO. AUDEL & CO., 65 W. 23rd St., New York City

Mail Vol. I, Electric Library on 7 days' free trial. If O. K. I will remit \$1.50,
otherwise I will return it. I also request you to mail one book each month on
same terms. No obligation unless I am satisfied.

Name.....

Address.....

Occupation.....

DIESEL POWER

A COMING AMERICAN INDUSTRY



THE internal-combus-
tion engine represents
man's supreme tri-
umph of machine
power. Diesel engi-
neers are in great de-

mand. Many are acquiring necessary knowl-
edge through spare-time study of this modern
I. C. S. Course on Diesel engines. Free booklet!

INTERNATIONAL CORRESPONDENCE SCHOOLS

Box 5598-H, Scranton, Penna.

Explain fully about your course in the subject
marked X:

☐ DIESEL POWER

- ☐ Mechanical Engineering
- ☐ Automobile Course
- ☐ Concrete Construction
- ☐ Civil Engineering
- ☐ Gas Engine Operating
- ☐ Electrical Engineering
- ☐ High School Subjects

- ☐ Architecture
- ☐ Radio
- ☐ Chemistry
- ☐ Aviation Engines
- ☐ Air Conditioning
- ☐ Refrigeration
- ☐ Civil Service

Name..... Age.....

Address.....

Timely Tips FOR FALL AND WINTER DRIVING

6 simple things to do now to save cold weather trouble and expense



1 KEEP YOUR BATTERY AT ITS BEST

Many a motorist unknowingly runs his car all summer on a battery with a weak or dead cell, then wonders why he has starting trouble the minute a cold wave comes to town. Even a fully charged battery operates only at about 50% efficiency in zero weather. In addition, your battery gets heavier starting loads and lights are burned longer. Have your battery checked now! Not the usual quick inspection. Be sure a volt meter reading is taken on each cell. Finally—keep your eye on your battery and you'll keep your car out of trouble.



2 CHEAP IGNITION INSURANCE

It will cost you mighty little and save you a heap of grief to have your ignition system and electric wiring checked for leaks and short circuits. Most important, have your spark plugs cleaned and adjusted. Hot summer driving has probably increased the gap between the spark plug points. Have them reset to 25 thousandths of an inch for best cold weather results.



3 INCREASE THE GENERATOR CHARGE

The best way to offset the heavy battery drain that is sure to come with cold weather starting and lighting is to increase the charging rate of the generator. This is achieved by resetting the third brush. If your car is radio equipped your generator charge should be boosted to the maximum and radio listening cut to the minimum.



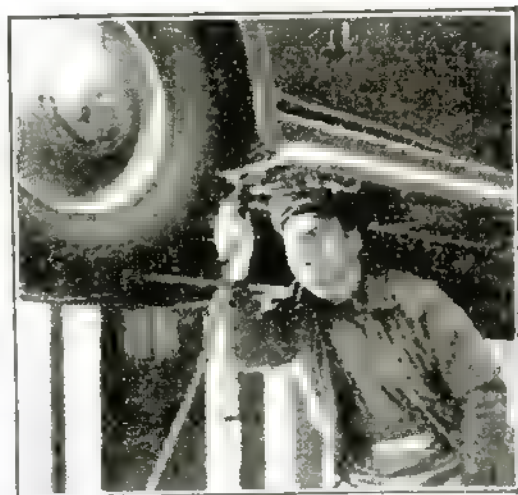
4 RADIATOR PRECAUTIONS

It's none too early for most motorists, especially those in the Northern States, to guard against a sudden drop in the thermometer. A half-charge of a good anti-freeze is your best insurance against unexpected zero weather. Before adding the anti-freeze have your radiator flushed and all hose connections tightened.



5 USE LIGHTER TRANSMISSION AND DIFFERENTIAL LUBRICANTS

The best time to change your transmission and differential lubricants is in the Fall. First: you get fresh, clean lubrication which is vital after a summer season of heavy driving. Second: you get lighter lubricants which are a material aid in facilitating cold weather starting. After your old worn out lubricants are removed from the transmission and differential housings, make sure kerosene oil is used to flush out all grit and metal grindings. But remember this: Because winter gear lubricants are lighter in body, they must be higher in quality to meet the extra cold weather driving demands. Play safe! Use the new Veedol Gear Lubricants.



Your dealer has them and he applies them according to the manufacturer's directions in the 1935 Veedol Lubrication Guide.



6 CHANGE TO COLD-PROOF, HEAT-PROOF MOTOR OIL



Nearly every motorist realizes that his car demands a lighter motor oil in cold weather. But few motorists know that winter motor oil must not only be cold-proof but heat-proof. It isn't enough that an oil flows freely at zero temperatures. It still must hold its body and lubricate fully after the motor is warmed up. That's why it will pay you to insist on Winter Veedol—the oil that is both cold-proof and heat-proof—the only motor oil used by Admiral Byrd in both of his famous Antarctic Expeditions.

Change to Veedol now—the world's finest 100% Pennsylvania oil—sold everywhere in refinery-sealed cans at no extra cost.

Popular Mechanics Magazine

ENTERTAINING AND USEFUL KNOWLEDGE FOR EVERYONE

54¢ PER COPY

SEPTEMBER 1966

NO. 100

The CONQUEST of STATIC

UNUSUAL AND
UNCOMMON
KNOWLEDGE
FOR EVERYONE
FROM THE
LATEST SCIENCE
AND TECHNOLOGY
TO THE
MOST INTERESTING
AND USEFUL
FACTS OF
EVERYDAY
LIFE.

THE
MAGAZINE
FOR
EVERYONE
WHO
WANTS
TO
KNOW
THE
LATEST
AND
MOST
INTERESTING
FACTS
OF
SCIENCE
AND
TECHNOLOGY.



THE
MAGAZINE
FOR
EVERYONE
WHO
WANTS
TO
KNOW
THE
LATEST
AND
MOST
INTERESTING
FACTS
OF
SCIENCE
AND
TECHNOLOGY.



THE
MAGAZINE
FOR
EVERYONE
WHO
WANTS
TO
KNOW
THE
LATEST
AND
MOST
INTERESTING
FACTS
OF
SCIENCE
AND
TECHNOLOGY.

THE
MAGAZINE
FOR
EVERYONE
WHO
WANTS
TO
KNOW
THE
LATEST
AND
MOST
INTERESTING
FACTS
OF
SCIENCE
AND
TECHNOLOGY.

*Best Science & Technology
Magazine of the Year*



NEW 100,000-SQ-FT BUILDING FOR THE UNIVERSITY OF CALIFORNIA, SAN DIEGO, WAS DESIGNED BY THE UNIVERSITY'S ARCHITECT, ANDERSON AND ANDERSON, SAN DIEGO. THE BUILDING WAS CONSTRUCTED BY THE UNIVERSITY'S CONSTRUCTION DIVISION, SAN DIEGO.

the building's design and construction. The building's design and construction was a joint effort between the university's architecture and engineering departments. The building's design was a joint effort between the university's architecture and engineering departments. The building's design was a joint effort between the university's architecture and engineering departments.

The building's design and construction was a joint effort between the university's architecture and engineering departments. The building's design was a joint effort between the university's architecture and engineering departments. The building's design was a joint effort between the university's architecture and engineering departments.

The building's design and construction was a joint effort between the university's architecture and engineering departments. The building's design was a joint effort between the university's architecture and engineering departments. The building's design was a joint effort between the university's architecture and engineering departments.



THE BUILDING'S EXTERIOR WAS DESIGNED BY THE UNIVERSITY'S ARCHITECT, ANDERSON AND ANDERSON, SAN DIEGO.





Plane Without a Tail Is Designed for Safety

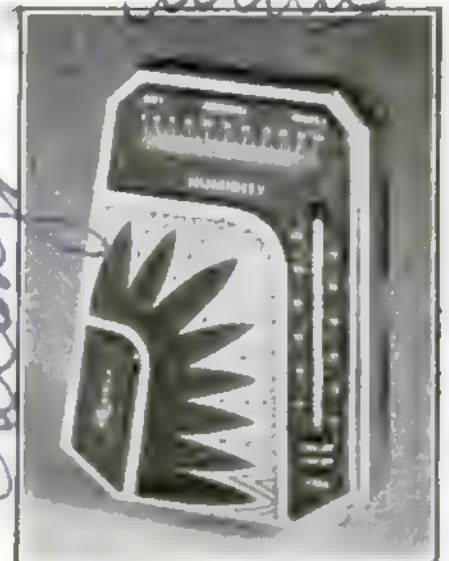


The "Arrowplane" in Flight (Top) and on the Ground; Note Space in the Cabin

veloped to such an extent that much of the skill ordinarily required for piloting is not essential. The seat accommodates pilot and passenger. The designer, Waldo D. Waterman, expects the ship to sell at less than present planes of the same size.

WEATHER GAUGE FOR DESK TELLS TEMPERATURE AND HUMIDITY

Hung on the wall like a calendar or placed on the desk, a small combination thermometer and humidity guide tells at a glance the temperature and relative humidity. A horizontal dial across the top records the humidity. The thermometer runs vertically up the side. The instrument is three and three-eighths inches wide, four and five-eighths inches high and seven-eighths of an inch deep. It has a standing easel that folds back to permit hanging anywhere.



Easy to take off, fly and land, the latest "flivver" plane built for experimental work by the bureau of air commerce has no tail. Instead, it resembles an arrow. A ninety-five horsepower motor, located at the rear of the cabin, gives the small craft a top speed of 110 miles per hour and a cruising speed of ninety-five miles per hour. It takes off and lands at about forty miles per hour. Its twenty-six gallon tank holds fuel for 350 miles. A special device which makes it almost impossible to stall the plane completely or make it spin can be installed, but even without this safety feature, it has been found impossible to hold the ship in a spin, no matter how the controls are handled, the maximum being two turns. Simplicity of handling has been de-

Reliance die stamping Co
1260 Clybourn ave





LEFT, operating the compact air-cooled spot welder which makes semi-continuous welds in metal one-twentieth of an inch in thickness or lighter, and, at right, punching holes with the aid of one of the attachments on the shaping machine.

For prices see 130a *Continued.*
By H. W. MAGEE 10/18/37

W. L. Ascock Bros. Mfg. Co. muncie, ind.

TAKE a sheet of cardboard, a pair of scissors, a pot of glue and a can of paint. Cut out a design for a wastebasket. Glue the edges together, paste the bottom to the sides and paint it inside and out. Not much of a task, is it? The trouble is that it's not much of a basket either.

But suppose you had used sheet metal instead of the cardboard and could have done the job almost as easily and quickly. You would have had a substantial metal basket instead of a flimsy cardboard one. That's the opportunity open to home craftsmen today.

With the aid of a new portable metal-working outfit, you can make articles of sheet metal almost as easily as though you were working with cardboard. You can cut, bend, weld and paint the pieces going into a wastebasket, for instance, in less than half an hour and at a cost of less than twenty cents.

To realize the possibilities, simply look around your home, shop or office and jot down the innumerable articles made of sheet metal or in which sheet metal can be substituted for other materials. You'll find trays, stands, baskets, chairs, stools, racks, shelves, bric-a-brac, tables, lamps, radiator covers, fire screens, window screens, soap holders, bird cages, lawn ornaments, lunch boxes, ice boxes—almost an endless list.

With the metal-working equipment, making these and literally hundreds of other useful articles becomes an easy matter requiring neither special skill nor technical training. It's just a matter of substituting the sheet metal for your cardboard, a motorized jig shear for the scissors, a metal shaper for your hands in bending the parts, a portable electric welder for the glue and a portable sprayer for the can of paint and brush.

Sheet metal working, of course, is not

*Suggest Magna Machine and Tool Works
635 Northland Ave., Buffalo, N.Y.*















Photographer David LaChapelle has been making waves in the art world with his vibrant, surreal, and often controversial images. His work is a blend of fashion, fantasy, and social commentary, often featuring a cast of models and a rich, detailed set design.

LaChapelle's work is characterized by its vibrant colors and surreal imagery. He often uses a combination of studio lighting and natural light to create a dreamlike atmosphere. His images are often described as "visual poetry," capturing a moment of pure imagination. He has been praised for his ability to create a world that is both familiar and completely new.

LaChapelle's work has been exhibited in major museums and galleries around the world. His images have also been featured in numerous books and magazines. He is considered one of the most influential photographers of the 21st century.

As the world's most famous and best-selling photographer, LaChapelle's work has inspired a generation of artists. His images are a testament to the power of imagination and the beauty of the human world. He has shown us that there is no limit to what we can create with our eyes and our hearts.

BY JENNIFER HARRIS



Photographer John Doe is known for his bold, experimental work. His images often challenge the viewer's perception and explore the boundaries of the medium.



'Mass' Drivers by Police Not Known for Three



When a car is
seen on a street
and the driver is
not known to the
police, the car is
usually stopped
and the driver is
asked for identification.
If the driver does
not provide identification,
the car is usually
impounded and the
driver is taken to
the station for
further questioning.

The car is usually
impounded for three
days.

Police Not Yet Released by Motorcycle Riders

When a car is
seen on a street
and the driver is
not known to the
police, the car is
usually stopped
and the driver is
asked for identification.
If the driver does
not provide identification,
the car is usually
impounded and the
driver is taken to
the station for
further questioning.



The car is usually
impounded for three
days.













The National Association of Manufacturers Supports the President's Trade Policy

Manufacturers support the trade agreements negotiated by the President because they are the only way to ensure that the United States remains competitive in the global marketplace.

The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace. The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace. The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace.

The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace. The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace. The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace.

The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace. The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace. The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace.

Manufacturers support the trade agreements negotiated by the President because they are the only way to ensure that the United States remains competitive in the global marketplace. The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace. The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace.

The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace. The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace. The President's trade policy is the only way to ensure that the United States remains competitive in the global marketplace.









INTEGRAL MONITORING
 The Integral Monitoring System (IMS) is a key component of the Space Shuttle program, providing real-time monitoring of the shuttle's health and performance.

The Integral Monitoring System (IMS) is a key component of the Space Shuttle program, providing real-time monitoring of the shuttle's health and performance. It is a complex system that integrates data from various sensors and instruments to provide a comprehensive view of the shuttle's status.

The IMS is designed to monitor the shuttle's health and performance throughout its mission. It provides real-time data on the shuttle's position, velocity, and attitude, as well as on the status of its various systems and components. This information is used to detect and diagnose problems, and to provide early warning of potential failures.

The IMS is a critical part of the shuttle's safety and reliability. It provides the data needed to make informed decisions about the shuttle's mission and to take corrective action if necessary. Without the IMS, the shuttle's health and performance would be difficult to monitor, and the risk of failure would be significantly increased.

The Integral Monitoring System (IMS) is a key component of the Space Shuttle program, providing real-time monitoring of the shuttle's health and performance.



INTEGRAL MONITORING
 The Integral Monitoring System (IMS) is a key component of the Space Shuttle program, providing real-time monitoring of the shuttle's health and performance.

© Springer-Verlag Berlin Heidelberg 2005

[illegible]

100

1997

Keywords: child sexual abuse; disclosure; social support; self-esteem; coping strategies

...the ...











THE RICH







The first part of the paper discusses the importance of the
 Journal of Management Education in the field of management
 education. It then presents a review of the journal's
 content, highlighting the quality and diversity of the
 articles. The second part of the paper discusses the
 journal's impact on the field of management education,
 including its role in advancing research and practice.
 The paper concludes with a discussion of the journal's
 future and its potential to continue to make a
 significant contribution to the field.

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26



...the

...the ...

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

1000

[illegible]

Exterior lighting and the interior design of the building.

Homemade Crafts Have History as Art Models



Handmade crafts have a long history in the area.



Handmade crafts have a long history in the area.



Handmade crafts have a long history in the area.



Handmade crafts have a long history in the area.



Handmade crafts have a long history in the area.

Florida Thinks That Species Are Back On



Researchers are studying the status of the Florida panther, a subspecies of the big cat.

Florida's Department of Natural Resources (DNR) has announced that it has found evidence that the Florida panther, a subspecies of the big cat, is making a comeback. The DNR says that it has found a number of tracks and signs of the panther in the state's natural areas, including the Ocala National Forest and the Suwannee River State Park. The DNR says that it is currently conducting a study to determine the extent of the panther's range and to develop a conservation plan for the species.

Florida's Endangered Species List Shows Progress

Florida's Department of Natural Resources (DNR) has announced that it has found evidence that the Florida panther, a subspecies of the big cat, is making a comeback. The DNR says that it has found a number of tracks and signs of the panther in the state's natural areas, including the Ocala National Forest and the Suwannee River State Park. The DNR says that it is currently conducting a study to determine the extent of the panther's range and to develop a conservation plan for the species.

The DNR's list of endangered species includes the Florida panther, the Florida scrub jay, the Florida scrub lizard, and the Florida scrub toad. The DNR says that it is currently conducting a study to determine the extent of the panther's range and to develop a conservation plan for the species.

Florida's Endangered Species List Shows Progress

The DNR's list of endangered species includes the Florida panther, the Florida scrub jay, the Florida scrub lizard, and the Florida scrub toad. The DNR says that it is currently conducting a study to determine the extent of the panther's range and to develop a conservation plan for the species.

The DNR's list of endangered species includes the Florida panther, the Florida scrub jay, the Florida scrub lizard, and the Florida scrub toad. The DNR says that it is currently conducting a study to determine the extent of the panther's range and to develop a conservation plan for the species.





Explosion EXPERTS



Large cloud of smoke billows from a reactor at a chemical plant in Germany.

add Thrills to MOVIES



1. *Journal of the American Medical Association*, 1997; 277: 1039-1043.



When the owner is given the option to adjust to the new market, some owners may not adjust at all. For example, when the owner has the confidence that the demand is growing, increasing taxes, the effect is to delay the owner's response.

Abstract—The purpose of this study was to determine the effect of a 10-week training program on the heart rate (HR) and energy expenditure (EE) of sedentary, middle-aged women. The subjects were 15 women, 40 to 50 years of age, who were sedentary and had no cardiovascular or other medical problems. They were randomly assigned to a 10-week training program or a control group. The training program consisted of three sessions per week of aerobic exercise at 60% to 70% of maximum HR. The control group was instructed to maintain their current level of activity. The results of the study showed that the training program had a significant effect on the HR and EE of the subjects. The HR of the training group decreased significantly from 160 to 140 beats per minute, and the EE of the training group increased significantly from 1,800 to 2,200 kcal per day. The control group showed no significant change in HR or EE. The results of this study suggest that a 10-week training program can have a significant effect on the HR and EE of sedentary, middle-aged women.

United with the other three major engineering societies (including the ASCE and American Institute of Mechanical Engineers) that will combine their resources and efforts with those of the ASCE, the four major associations will now coordinate their efforts to help the engineering profession to meet the challenges of the 21st century. The new organization will be known as the American Society of Professional Engineers (ASPE).









Across the ATLANTIC



THE ATLANTIC OCEAN

Atlantic Ocean, which is the largest body of water on the planet, is a vast expanse of water that stretches from the North Pole to the South Pole. It is the only body of water that connects the four major oceans of the world: the Pacific, Indian, Atlantic, and Arctic.

The Atlantic Ocean is a body of water that stretches from the North Pole to the South Pole. It is the only body of water that connects the four major oceans of the world: the Pacific, Indian, Atlantic, and Arctic.

The Atlantic Ocean is a body of water that stretches from the North Pole to the South Pole. It is the only body of water that connects the four major oceans of the world: the Pacific, Indian, Atlantic, and Arctic.

The Atlantic Ocean is a body of water that stretches from the North Pole to the South Pole. It is the only body of water that connects the four major oceans of the world: the Pacific, Indian, Atlantic, and Arctic.





[illegible][illegible][illegible]

...the ...

PLANNING LEADS TO BETTER PERFORMANCE
FOR MANUFACTURING ORGANIZATIONS

THE NEW YORK STATE OFFICE OF GENERAL SERVICES (OGS) HAS COMPLETED A TWO-YEAR STUDY OF THE PLANNING AND CONTROL FUNCTIONS OF MANUFACTURING FIRMS. THE STUDY, CONDUCTED BY THE BUREAU OF ECONOMIC ANALYSIS, INDICATES THAT FIRMS THAT ENGAGE IN PLANNING AND CONTROL FUNCTIONS ARE MORE PROFITABLE AND HAVE HIGHER PRODUCTIVITY THAN FIRMS THAT DO NOT. THE STUDY ALSO FINDS THAT FIRMS THAT ENGAGE IN PLANNING AND CONTROL FUNCTIONS ARE MORE LIKELY TO ADOPT NEW TECHNOLOGIES AND TO INCREASE THEIR RESEARCH AND DEVELOPMENT EXPENDITURES.



100





















Figure 1. A large, dark, textured object, possibly a fossil or mineral specimen, mounted on a light-colored surface. A small, rectangular label is visible in the bottom right corner of the image.



Figure 2. A circular inset image showing a close-up of a dark, textured object, possibly a fossil or mineral specimen, mounted on a light-colored surface.

The first of the two specimens is a large, dark, textured object, possibly a fossil or mineral specimen, mounted on a light-colored surface. A small, rectangular label is visible in the bottom right corner of the image.

The second specimen is a smaller, dark, textured object, possibly a fossil or mineral specimen, mounted on a light-colored surface. A small, rectangular label is visible in the bottom right corner of the image.

The third specimen is a dark, textured object, possibly a fossil or mineral specimen, mounted on a light-colored surface. A small, rectangular label is visible in the bottom right corner of the image.



Figure 3. A large, dark, textured object, possibly a fossil or mineral specimen, mounted on a light-colored surface. A small, rectangular label is visible in the bottom right corner of the image.











Abstract

[illegible]

1. **Introduction**
 2. **Methodology**
 3. **Results**
 4. **Discussion**
 5. **Conclusion**
 6. **References**
 7. **Appendix**
 8. **Index**
 9. **Glossary**
 10. **Notes**
 11. **Footnotes**
 12. **Endnotes**
 13. **Supplementary Material**
 14. **Tables**
 15. **Figures**
 16. **Tables**
 17. **Figures**
 18. **Tables**
 19. **Figures**
 20. **Tables**
 21. **Figures**
 22. **Tables**
 23. **Figures**
 24. **Tables**
 25. **Figures**
 26. **Tables**
 27. **Figures**
 28. **Tables**
 29. **Figures**
 30. **Tables**
 31. **Figures**
 32. **Tables**
 33. **Figures**
 34. **Tables**
 35. **Figures**
 36. **Tables**
 37. **Figures**
 38. **Tables**
 39. **Figures**
 40. **Tables**
 41. **Figures**
 42. **Tables**
 43. **Figures**
 44. **Tables**
 45. **Figures**
 46. **Tables**
 47. **Figures**
 48. **Tables**
 49. **Figures**
 50. **Tables**
 51. **Figures**
 52. **Tables**
 53. **Figures**
 54. **Tables**
 55. **Figures**
 56. **Tables**
 57. **Figures**
 58. **Tables**
 59. **Figures**
 60. **Tables**
 61. **Figures**
 62. **Tables**
 63. **Figures**
 64. **Tables**
 65. **Figures**
 66. **Tables**
 67. **Figures**
 68. **Tables**
 69. **Figures**
 70. **Tables**
 71. **Figures**
 72. **Tables**
 73. **Figures**
 74. **Tables**
 75. **Figures**
 76. **Tables**
 77. **Figures**
 78. **Tables**
 79. **Figures**
 80. **Tables**
 81. **Figures**
 82. **Tables**
 83. **Figures**
 84. **Tables**
 85. **Figures**
 86. **Tables**
 87. **Figures**
 88. **Tables**
 89. **Figures**
 90. **Tables**
 91. **Figures**
 92. **Tables**
 93. **Figures**
 94. **Tables**
 95. **Figures**
 96. **Tables**
 97. **Figures**
 98. **Tables**
 99. **Figures**
 100. **Tables**
 101. **Figures**
 102. **Tables**
 103. **Figures**
 104. **Tables**
 105. **Figures**
 106. **Tables**
 107. **Figures**
 108. **Tables**
 109. **Figures**
 110. **Tables**
 111. **Figures**
 112. **Tables**
 113. **Figures**
 114. **Tables**
 115. **Figures**
 116. **Tables**
 117. **Figures**
 118. **Tables**
 119. **Figures**
 120. **Tables**
 121. **Figures**
 122. **Tables**
 123. **Figures**
 124. **Tables**
 125. **Figures**
 126. **Tables**
 127. **Figures**
 128. **Tables**
 129. **Figures**
 130. **Tables**
 131. **Figures**
 132. **Tables**
 133. **Figures**
 134. **Tables**
 135. **Figures**
 136. **Tables**
 137. **Figures**
 138. **Tables**
 139. **Figures**
 140. **Tables**
 141. **Figures**
 142. **Tables**
 143. **Figures**
 144. **Tables**
 145. **Figures**
 146. **Tables**
 147. **Figures**
 148. **Tables**
 149. **Figures**
 150. **Tables**
 151. **Figures**
 152. **Tables**
 153. **Figures**
 154. **Tables**
 155. **Figures**
 156. **Tables**
 157. **Figures**
 158. **Tables**
 159. **Figures**
 160. **Tables**
 161. **Figures**
 162. **Tables**
 163. **Figures**
 164. **Tables**
 165. **Figures**
 166. **Tables**
 167. **Figures**
 168. **Tables**
 169. **Figures**
 170. **Tables**
 171. **Figures**
 172. **Tables**
 173. **Figures**
 174. **Tables**
 175. **Figures**
 176. **Tables**
 177. **Figures**
 178. **Tables**
 179. **Figures**
 180. **Tables**
 181. **Figures**
 182. **Tables**
 183. **Figures**
 184. **Tables**
 185. **Figures**
 186. **Tables**
 187. **Figures**
 188. **Tables**
 189. **Figures**
 190. **Tables**
 191. **Figures**
 192. **Tables**
 193. **Figures**
 194. **Tables**
 195. **Figures**
 196. **Tables**
 197. **Figures**
 198. **Tables**
 199. **Figures**
 200. **Tables**
 201. **Figures**
 202. **Tables**
 203. **Figures**
 204. **Tables**
 205. **Figures**
 206. **Tables**
 207. **Figures**
 208. **Tables**
 209. **Figures**
 210. **Tables**
 211. **Figures**
 212. **Tables**
 213. **Figures**
 214. **Tables**
 215. **Figures**
 216. **Tables**
 217. **Figures**
 218. **Tables**
 219. **Figures**
 220. **Tables**
 221. **Figures**
 222. **Tables**
 223. **Figures**
 224. **Tables**
 225. **Figures**
 226. **Tables**
 227. **Figures**
 228. **Tables**
 229. **Figures**
 230. **Tables**
 231. **Figures**
 232. **Tables**
 233. **Figures**
 234. **Tables**
 235. **Figures**
 236. **Tables**
 237. **Figures**
 238. **Tables**
 239. **Figures**
 240. **Tables**
 241. **Figures**
 242. **Tables**
 243. **Figures**
 244. **Tables**
 245. **Figures**
 246. **Tables**
 247. **Figures**
 248. **Tables**
 249. **Figures**
 250. **Tables**
 251. **Figures**
 252. **Tables**
 253. **Figures**
 254. **Tables**
 255. **Fig**

Figure 1. A schematic diagram of the experimental design. The subjects were divided into two groups: the control group and the experimental group. The control group received a standard training program, while the experimental group received a modified training program. The results of the training program were compared between the two groups.

[illegible]

1000

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26









GOAL-KICKER IN ACTION
 (TOP) BIRMINGHAM CITY

There's a sense of urgency in the way the players move, the way they breathe, the way they look at the ball. It's a feeling of being part of something bigger than themselves, of being part of a team that is fighting for a cause.

The players are not just athletes, they are warriors. They are men who have been trained to fight, to win, to never give up. They are men who have been taught to play for the team, to play for the glory of the club, to play for the love of the game.

They are men who have been taught to play for the team, to play for the glory of the club, to play for the love of the game.

They are men who have been taught to play for the team, to play for the glory of the club, to play for the love of the game.



They are men who have been taught to play for the team, to play for the glory of the club, to play for the love of the game.

They are men who have been taught to play for the team, to play for the glory of the club, to play for the love of the game.

development. The boat designer immediately has various responsibilities for the boat, including design, construction, and testing. It may not be thought of as such, but the designer must be able to communicate with the client, the builder, and the crew. The designer must be able to communicate with the client, the builder, and the crew. The designer must be able to communicate with the client, the builder, and the crew.

Designing a boat is a complex task. The designer must be able to communicate with the client, the builder, and the crew. The designer must be able to communicate with the client, the builder, and the crew. The designer must be able to communicate with the client, the builder, and the crew.

The designer must be able to communicate with the client, the builder, and the crew. The designer must be able to communicate with the client, the builder, and the crew. The designer must be able to communicate with the client, the builder, and the crew.

William Bradford Huie

WILLIAM BRADFORD HUIE AND HIS BOAT DESIGN



William Bradford Huie is a boat designer and builder. He has designed and built many boats, including sailboats and powerboats. He is a member of the International Boat Designers Association.

William Bradford Huie is a boat designer and builder. He has designed and built many boats, including sailboats and powerboats. He is a member of the International Boat Designers Association.

A Proprietary Solution

As a boat designer, you must be able to communicate with the client, the builder, and the crew. The designer must be able to communicate with the client, the builder, and the crew. The designer must be able to communicate with the client, the builder, and the crew.

William Bradford Huie is a boat designer and builder. He has designed and built many boats, including sailboats and powerboats. He is a member of the International Boat Designers Association.

William Bradford Huie is a boat designer and builder. He has designed and built many boats, including sailboats and powerboats. He is a member of the International Boat Designers Association.

William Bradford Huie is a boat designer and builder. He has designed and built many boats, including sailboats and powerboats. He is a member of the International Boat Designers Association.

WILLIAM BRADFORD HUIE AND HIS BOAT DESIGN



WILLIAM BRADFORD HUIE AND HIS BOAT DESIGN

William Bradford Huie is a boat designer and builder. He has designed and built many boats, including sailboats and powerboats. He is a member of the International Boat Designers Association.

WILLIAM BRADFORD HUIE AND HIS BOAT DESIGN

William Bradford Huie is a boat designer and builder. He has designed and built many boats, including sailboats and powerboats. He is a member of the International Boat Designers Association.

WILLIAM BRADFORD HUIE AND HIS BOAT DESIGN

William Bradford Huie is a boat designer and builder. He has designed and built many boats, including sailboats and powerboats. He is a member of the International Boat Designers Association.

William Bradford Huie is a boat designer and builder. He has designed and built many boats, including sailboats and powerboats. He is a member of the International Boat Designers Association.



HEROES of the



For the past several years, the U.S. military has been fighting a war in Afghanistan. The war has been a long and difficult one, and it has taken a toll on the lives of many soldiers. The soldiers who have fought in this war are the heroes of the story.

The soldiers who have fought in this war are the heroes of the story. They are the men and women who have risked their lives for their country. They are the men and women who have fought for freedom and justice. They are the men and women who have made the difference between life and death. They are the heroes of the story.



—The soldiers who have fought in this war are the heroes of the story.

—The soldiers who have fought in this war are the heroes of the story.

—The soldiers who have fought in this war are the heroes of the story.







£ 780 Emb. 2200 1/2 classmate,
4 W. 10 3 ed 10
Incey



Sketch of Landing Surface of Floating Seadrome; the Double-Hulled Ship Represents a Scale Drawing of the "Avion-Marin" Which Louis Bleriot Has Designed

FLYING alone in a twenty-five horsepower "crate," a daring Frenchman crossed the English Channel between Calais and Dover on July 25, 1909, thus giving ocean flying its humble beginnings only six years after the Wright brothers made their first power flight at Kitty Hawk.

Today, Louis Bleriot, the father of ocean flying, is still keenly alive to the problems of marine air transport. He is one of the foremost builders of ocean transports and his flying boat, the "Santos-Dumont," has established a record of fifteen crossings of the south Atlantic. Bleriot's factory is producing both military and civil aircraft.

In a recent interview in his Paris home, M. Bleriot revealed that he is actively interested in an ambitious plan to make transatlantic flying commercially profitable. He and his research staff have carried out numerous experiments toward producing a new type of ocean transport such as has never been seen before.

Working closely with the French government, M. Bleriot has completed designs for an aircraft which he calls an "avion marin." This "marine airplane" is not a flying boat, a seaplane, or a hydroplane. It consists, first of all, of a huge wing, about

100 feet from tip to tip, which sustains two whale-like passenger and freight-carrying compartments. The motors are in the rear of the wing and the entire aircraft weighs about fifteen tons.

M. Bleriot says an undercarriage is unnecessarily wasteful because it retards speed and adds considerable weight. His "avion marin" is essentially a land plane, but it is also adapted to landing on the ocean if necessary.

"Ocean flying on a commercial basis," he said, "can never advance very far unless some means is found of increasing the present proportion of pay load to the weight of fuel carried. If a marine transport can fly the Atlantic in a single hop, it means that about half of the total weight carried is fuel, and only five per cent consists of pay load. Therefore you are carrying ten times as much fuel as pay load! Compare this with the record of the 'Normandie,' the fastest form of merchant-ship transport. The 'Normandie,' carrying not more than seven per cent of her total weight in fuel, can cross the north Atlantic in about 100 hours.

"I have concluded that a non-stop commercial flying boat service across the



THE NEW YORK PETROCHEMICAL PLANT, WHICH PRODUCES POLYETHYLENE, IS ONE OF THE LARGEST IN THE WORLD.

THE NEW YORK PETROCHEMICAL PLANT, WHICH PRODUCES POLYETHYLENE, IS ONE OF THE LARGEST IN THE WORLD. THE PLANT IS A MAJOR SOURCE OF POLYETHYLENE, WHICH IS USED IN A WIDE RANGE OF APPLICATIONS, FROM PLASTIC BAGS TO PIPELINES.

THE PLANT IS A MAJOR SOURCE OF POLYETHYLENE, WHICH IS USED IN A WIDE RANGE OF APPLICATIONS, FROM PLASTIC BAGS TO PIPELINES.

THE NEW YORK PETROCHEMICAL PLANT, WHICH PRODUCES POLYETHYLENE, IS ONE OF THE LARGEST IN THE WORLD. THE PLANT IS A MAJOR SOURCE OF POLYETHYLENE, WHICH IS USED IN A WIDE RANGE OF APPLICATIONS, FROM PLASTIC BAGS TO PIPELINES.

THE PLANT IS A MAJOR SOURCE OF POLYETHYLENE, WHICH IS USED IN A WIDE RANGE OF APPLICATIONS, FROM PLASTIC BAGS TO PIPELINES.





More CONVENIENCES









How to make Cigarettes-

By LAMARCA BARRON

CIGARETTE-SMOKING INCREASED 200 PERCENT IN 1964, AND INCREASED 100 PERCENT IN 1965. IN 1966, 100,000,000 CIGARETTES WERE SMOKED IN THE UNITED STATES. IN 1967, 100,000,000 CIGARETTES WERE SMOKED IN THE UNITED STATES. IN 1968, 100,000,000 CIGARETTES WERE SMOKED IN THE UNITED STATES.

THE CIGARETTE-SMOKING INCREASED 200 PERCENT IN 1964, AND INCREASED 100 PERCENT IN 1965. IN 1966, 100,000,000 CIGARETTES WERE SMOKED IN THE UNITED STATES. IN 1967, 100,000,000 CIGARETTES WERE SMOKED IN THE UNITED STATES. IN 1968, 100,000,000 CIGARETTES WERE SMOKED IN THE UNITED STATES.

THE CIGARETTE-SMOKING INCREASED 200 PERCENT IN 1964, AND INCREASED 100 PERCENT IN 1965. IN 1966, 100,000,000 CIGARETTES WERE SMOKED IN THE UNITED STATES.

THE CIGARETTE-SMOKING INCREASED 200 PERCENT IN 1964, AND INCREASED 100 PERCENT IN 1965. IN 1966, 100,000,000 CIGARETTES WERE SMOKED IN THE UNITED STATES. IN 1967, 100,000,000 CIGARETTES WERE SMOKED IN THE UNITED STATES. IN 1968, 100,000,000 CIGARETTES WERE SMOKED IN THE UNITED STATES.



How to Install a Good Receiving Antenna



By F. L. BRITTIN
PART III

TWO, or three, 10-ft. lengths of ordinary copper drain pipe can be soldered together to make an effective non-directional antenna of the vertical type shown in Fig. 9. Erected on a flat roof where it may be guyed properly, it has equal receiving ability in all horizontal directions from its vertical axis. This is an excellent antenna for the all-wave listener in locations free from man-made static interference.

A heavy box or wood block is used to support the pipe several inches above the roof. It should rest directly on a porcelain insulator; if a suitable insulator is not available, use a heavy glass plate or an inverted porcelain bowl. Each guy wire should be broken in at least three places with 3-in. glass or porcelain strain insulators. Beginning 1 ft. from the pipe, space the remaining insulators about 3 ft. apart.

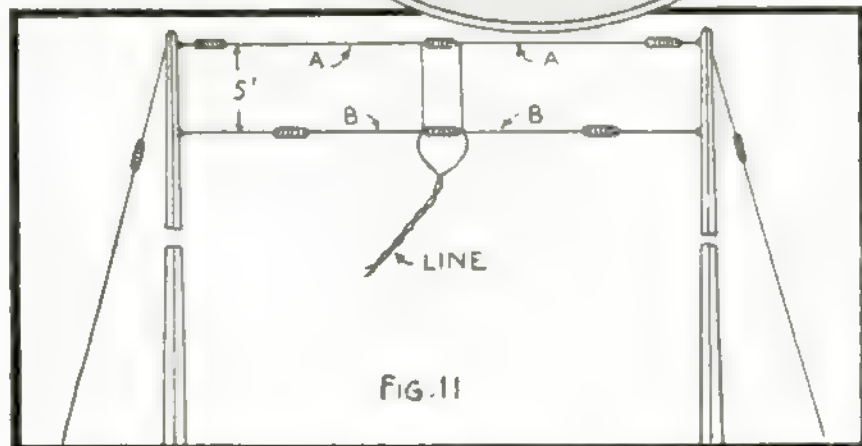
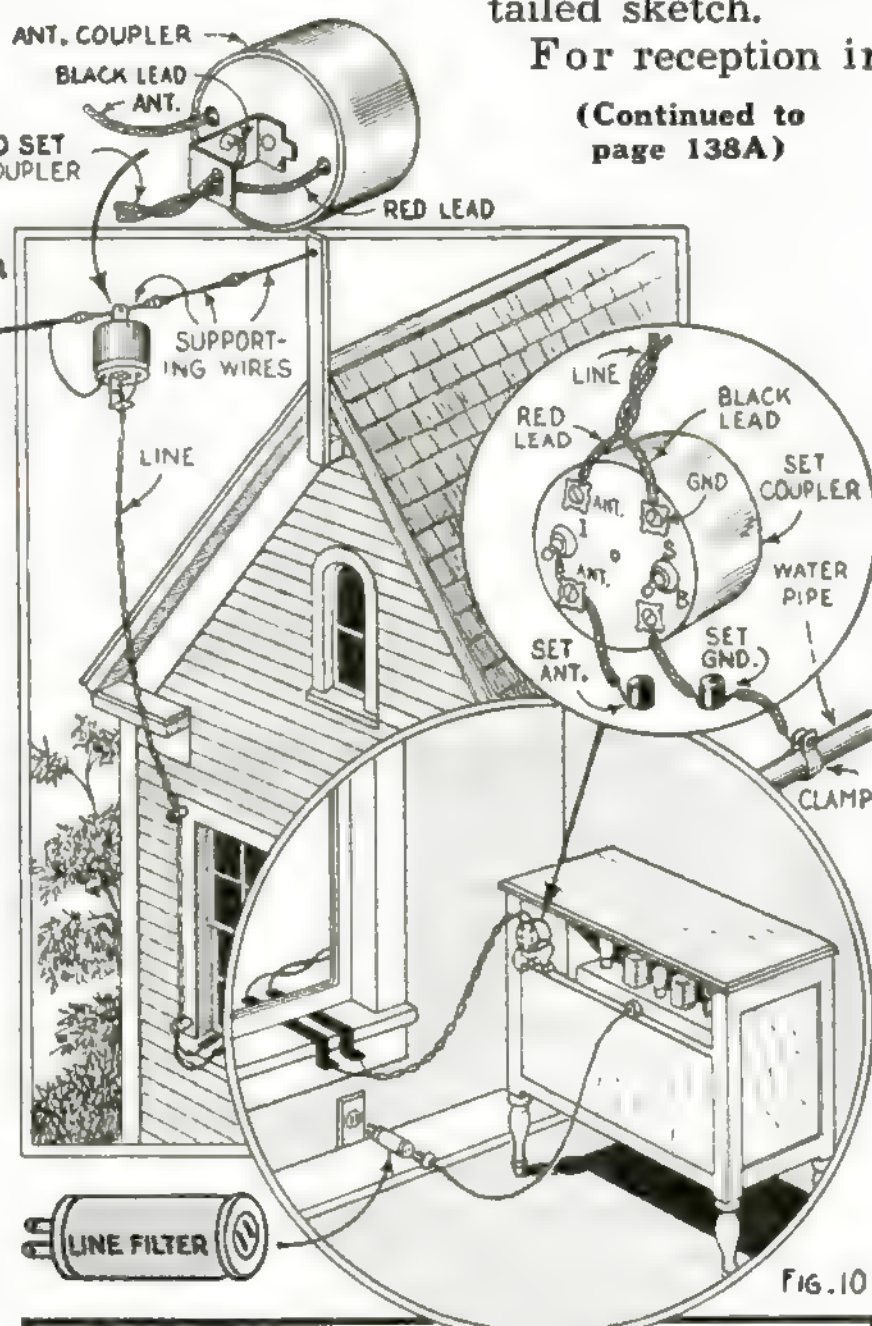
The copper pipe now acts as an insulated signal collector. The lead-in wire should be soldered securely to the bottom of the pipe and brought down to the set on

stand-off insulators, as directly as possible.

A filtered variety of the inverted L antenna is shown in Fig. 10; this system is designed for use in noisy locations. Although it employs a transmission line, the antenna coupler is mounted on the flat-top supporting wire nearest the house end of the antenna instead of at the center of the flat-top as in the doublet systems previously described. Available in kit form, this filtered all-wave antenna employs a special variety of set coupler to insure maximum efficiency at all frequencies or wave-bands. It is adjustable by means of two toggle switches on its top panel, as shown in the detailed sketch.

For reception in

(Continued to
page 138A)





Each photograph is
captioned with a
short description of
the product and its
features. The text is
written in a simple, clear
style.



The photograph shows a close-up of a textured surface, possibly a book cover or a piece of fabric.

How to Use the Book-Review Sheet

The book-review sheet is designed to help you record your thoughts and feelings about a book. It is divided into two main sections: the top section is for recording your thoughts and feelings about the book, and the bottom section is for recording your thoughts and feelings about the author. The top section is divided into two columns: the left column is for recording your thoughts and feelings about the book, and the right column is for recording your thoughts and feelings about the author. The bottom section is divided into two columns: the left column is for recording your thoughts and feelings about the book, and the right column is for recording your thoughts and feelings about the author.

Use the book-review sheet to record your thoughts and feelings about a book.



The photograph shows a small, round, white object, possibly a lamp or a piece of furniture, sitting on a dark surface.

How to Use the Book-Review Sheet

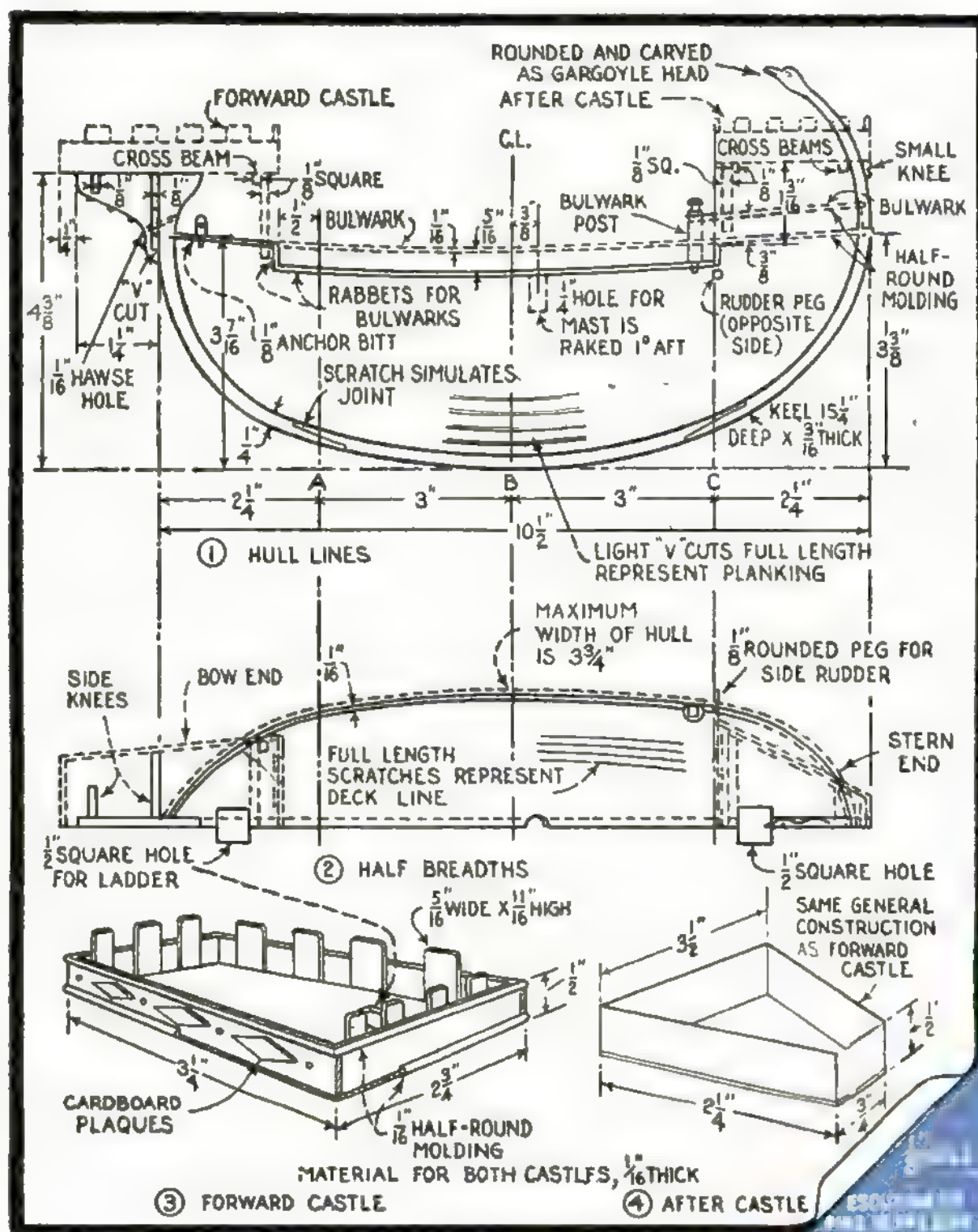
The book-review sheet is designed to help you record your thoughts and feelings about a book. It is divided into two main sections: the top section is for recording your thoughts and feelings about the book, and the bottom section is for recording your thoughts and feelings about the author. The top section is divided into two columns: the left column is for recording your thoughts and feelings about the book, and the right column is for recording your thoughts and feelings about the author. The bottom section is divided into two columns: the left column is for recording your thoughts and feelings about the book, and the right column is for recording your thoughts and feelings about the author.



The photograph shows a small, round, white object, possibly a lamp or a piece of furniture, sitting on a dark surface.

Use the book-review sheet to record your thoughts and feelings about a book.

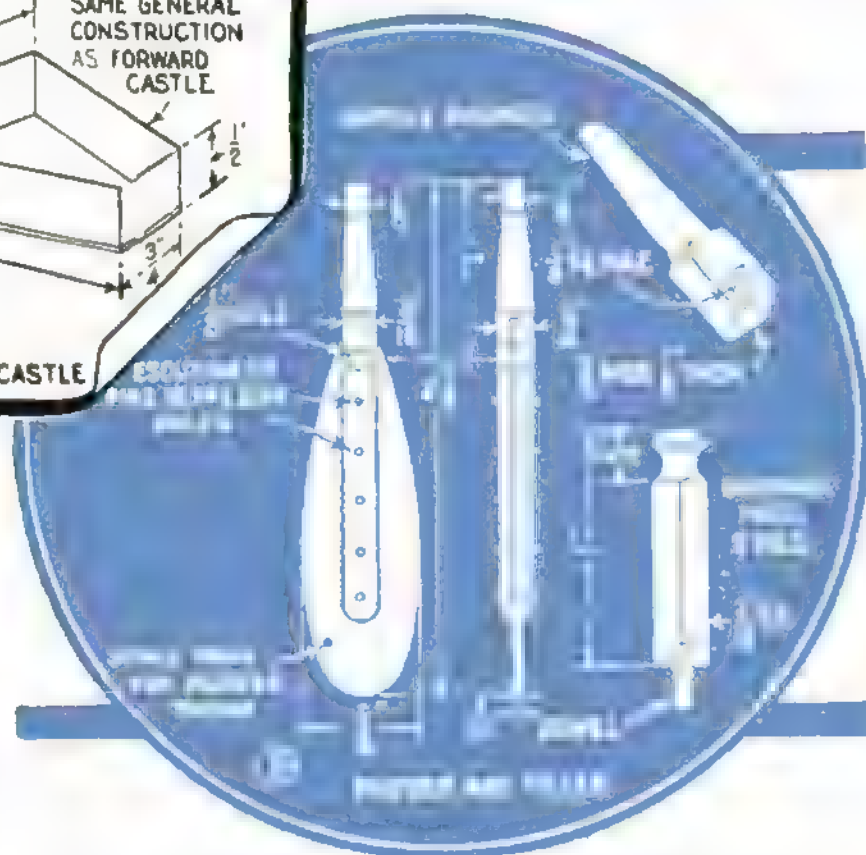
How to Use the Book-Review Sheet



cardboard templates are made to match the three hull sections, A, B and C. The half breadths, Fig. 2, show the outline of the main deck of the ship. Another cardboard pattern is now traced and cut to this outline and the curve is then transferred to the top side of the hull block. Only half the deck is shown in Fig. 2, the other half being an exact duplicate. This curve is likewise cut just a trifle larger and, when it is sawed thus, the block assumes the rough hull shape. Now we begin carving the hull. Section lines "A," "B" and "C"

At the forward end, the large knees, which support the forward castle fore and aft, are cut as a part of the same assembly. V cuts make these parts appear as separate units as in real shipbuilding practice. The side knees, forward, are cut from the waste of the same hardwood board. Fig. 1 is drawn full size and transferred to the board with carbon paper.

The hull proper is carved from a solid white pine block, 10 1/2 in. long, 3 3/4 in. wide and 3 7/16 in. thick. If stock of this thickness is not available, two pieces may be glued together with waterproof casein glue, along the centerline of the model. Now, using the cut-out, finished keel piece as a curve, a penciled mark is drawn on the side of the square block to indicate the curve of the hull, fore and aft, as it contacts the inside edge of the keel. It is best to saw the hull block just a little outside of the mark and, later, to file and sandpaper the hull down to a close fit with the keel piece. Next, thin plywood or



are first drawn in their respective locations on both sides of the block. A small spoke shave is used to cut away the waste stock and to shape the hull to the rounded sections. The templates are used as guides. Do not attempt to cut down the hull at any one section to the finished size. Instead, it should be carved little by little at each point until nearly completed. The final smoothing is done with coarse and fine sandpaper, checking meanwhile with the keel piece to make sure of a perfect fit. Thus far, we have not cut down the top of the block to provide for the lower main



the first time in the history of the company. The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation.

The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation. The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation. The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation. The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation.

The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation. The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation. The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation.

The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation. The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation. The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation.

The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation. The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation. The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation. The company's success is a result of the company's commitment to excellence in customer service, quality, and innovation.

Effect of the Acid-Bath on the Color of Eggs



Effect of the Acid-Bath on the Color of Eggs

Experimenters with children and adults can make a very simple experiment with eggs. The eggs are placed in a bowl of acid (such as vinegar) and the color of the egg changes. The color of the egg changes from white to yellow, and the color of the egg changes from white to yellow.

Experiment with the Color of Eggs

Experimenters with children and adults can make a very simple experiment with eggs. The eggs are placed in a bowl of acid (such as vinegar) and the color of the egg changes. The color of the egg changes from white to yellow, and the color of the egg changes from white to yellow.



Experimenters with children and adults can make a very simple experiment with eggs. The eggs are placed in a bowl of acid (such as vinegar) and the color of the egg changes. The color of the egg changes from white to yellow, and the color of the egg changes from white to yellow.

Experimenters with children and adults can make a very simple experiment with eggs. The eggs are placed in a bowl of acid (such as vinegar) and the color of the egg changes. The color of the egg changes from white to yellow, and the color of the egg changes from white to yellow.

Experiment with the Color of Eggs

Experimenters with children and adults can make a very simple experiment with eggs. The eggs are placed in a bowl of acid (such as vinegar) and the color of the egg changes. The color of the egg changes from white to yellow, and the color of the egg changes from white to yellow.



Experimenters with children and adults can make a very simple experiment with eggs. The eggs are placed in a bowl of acid (such as vinegar) and the color of the egg changes. The color of the egg changes from white to yellow, and the color of the egg changes from white to yellow.

Experiment with the Color of Eggs

Experimenters with children and adults can make a very simple experiment with eggs. The eggs are placed in a bowl of acid (such as vinegar) and the color of the egg changes. The color of the egg changes from white to yellow, and the color of the egg changes from white to yellow.



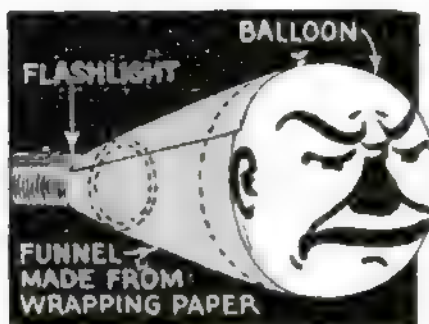
Experimenters with children and adults can make a very simple experiment with eggs. The eggs are placed in a bowl of acid (such as vinegar) and the color of the egg changes. The color of the egg changes from white to yellow, and the color of the egg changes from white to yellow.

Experiment with the Color of Eggs

Experimenters with children and adults can make a very simple experiment with eggs. The eggs are placed in a bowl of acid (such as vinegar) and the color of the egg changes. The color of the egg changes from white to yellow, and the color of the egg changes from white to yellow.

Toy Balloon and Flashlight Make Jack-o'-Lantern

A safe and cheap jack-o'-lantern for halloween night may be made from a toy rubber balloon, a pocket flashlight, and a sheet of wrapping paper. Roll the paper

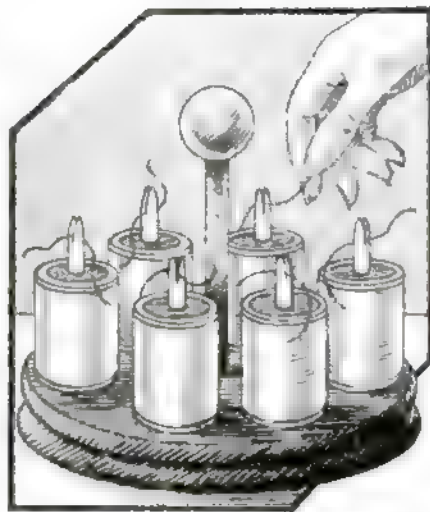


into a cone around the flashlight and fasten it with paper tape. Inflate the balloon to a size which will allow it to be forced snugly into the large end of the

cone, and then paint features on it with black ink as shown. Flashing of the light causes the head to be illuminated with a ghostly glow, revealing the painted caricature on the balloon.

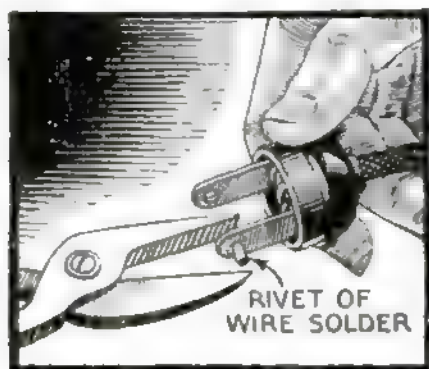
Novel Spool Holder to Keep Thread Ends Handy

To eliminate the usual inconvenience of thumbing a spool to locate the thread end, one amateur craftsman devised the spool rack shown. The novelty of the device is in the spool spindles, each of which is provided with a split top into which the thread end of the spool may be drawn to keep it ready for instant use.

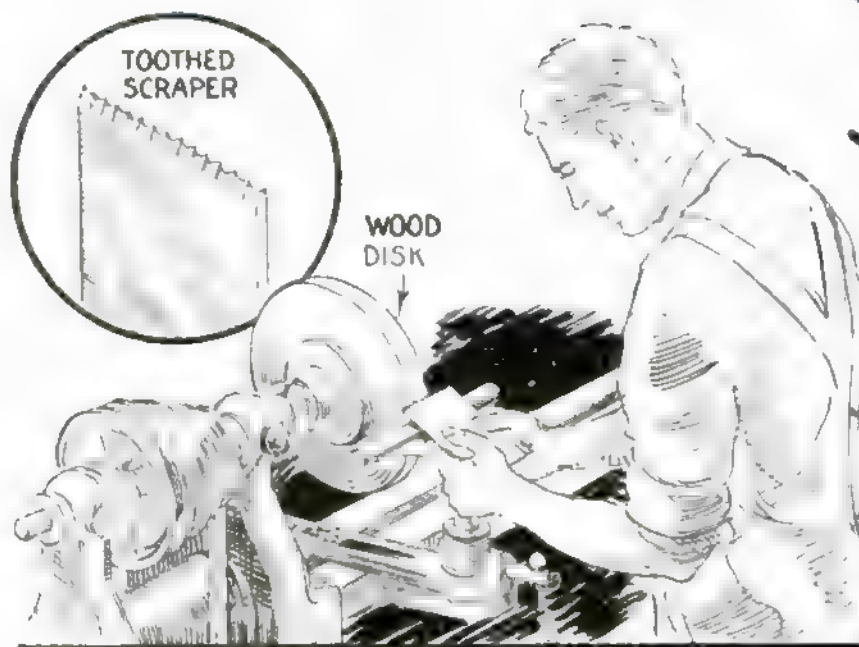


Instant Repair for Loose Attachment Plugs

When the spring contacts of a wall outlet fail to hold the prongs of an attachment plug securely, cut two short pieces of wire solder and insert these through the holes



of the prongs, as shown. When clinched with a pair of pliers, these improvised rivets will make the plug prongs fit snugly into the spring connections.



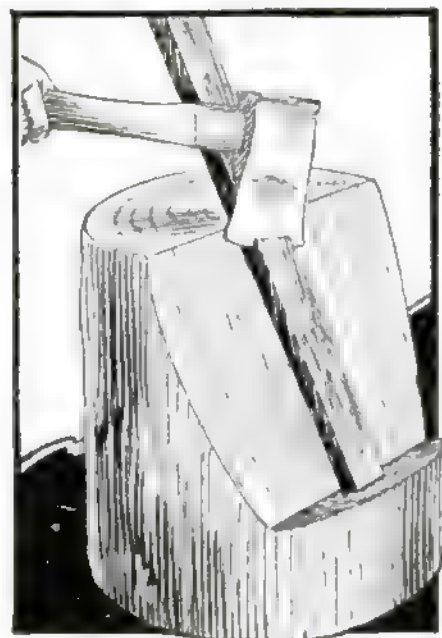
Wood Disks Turned Smoothly by Using Toothed Scraper, Which Is Made of Steel

Toothed Scraper Smooths Edges of Turned Work

Amateur woodworkers who have had difficulty in turning the edges of wood disks smooth along the end grain, even with a very sharp skew chisel, will find that a toothed scraper solves this problem nicely. Scrapers of this type have a series of parallel flutes ground into one surface. When the scraper is beveled a series of teeth are formed. Though not a common tool, this type of scraper can be obtained from the larger tool-supply houses at a nominal cost. In use, the tool rest of the lathe is set at center height and the scraper moved back and forth on it, in contact with the work as it rotates.

Beveled Chopping Block Helps to Eliminate Accidents

According to a Wisconsin woodworker, kindling may be cut on a beveled block without danger of an injury from flying pieces or slivers. An ideal block for this purpose is a short piece sawed from the end of a large log with one side beveled as shown, leaving a projection on which to rest one end of the work.



☐ To keep starch from sticking, add a little paraffin to it.

Woodworkers Tool Workshop
222 S. Jefferson
Chicago





Allyce, Angela
 113 of 100
 Allyce, Angela



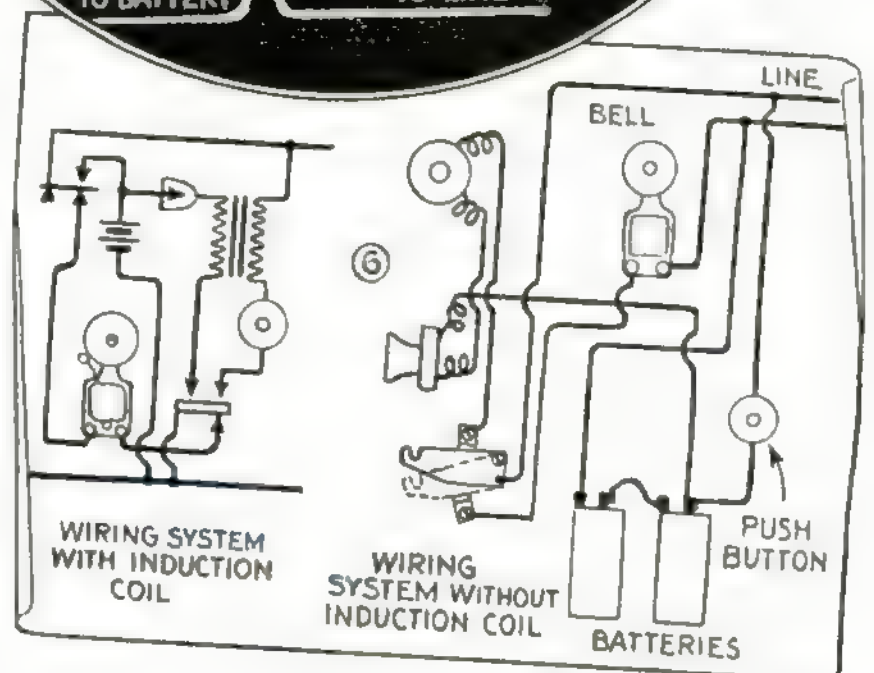
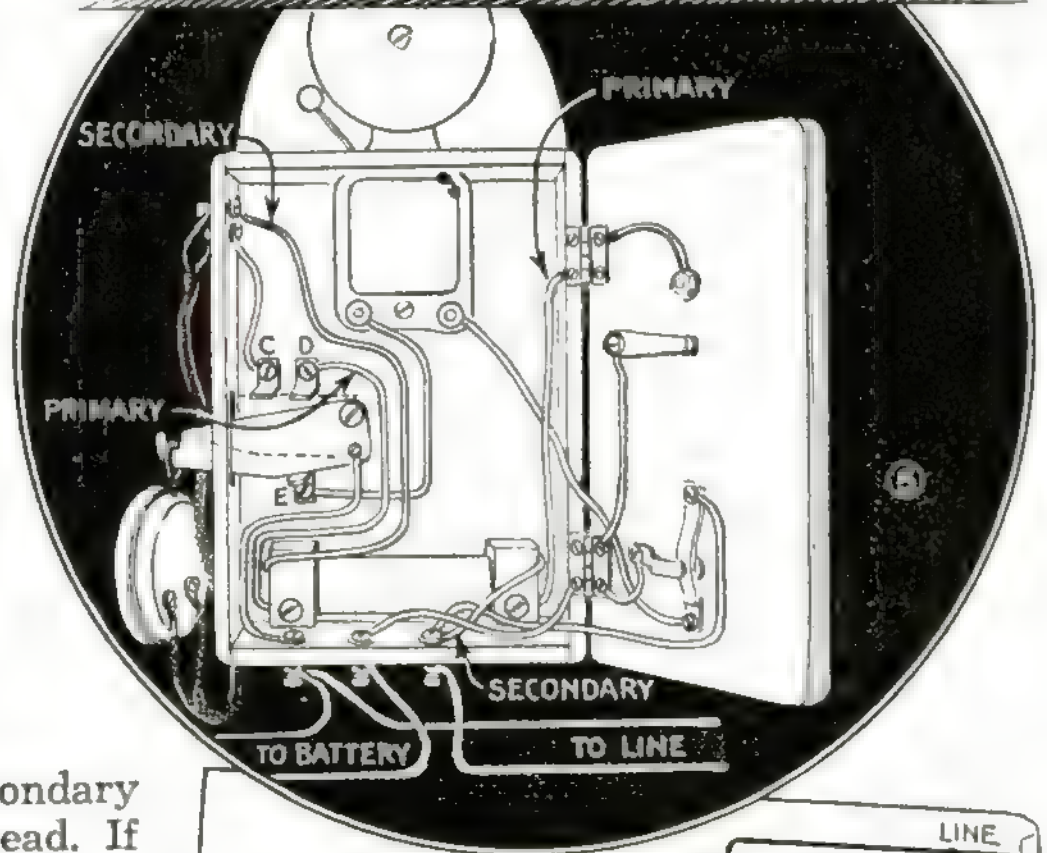
Allyce, Angela
 113 of 100
 Allyce, Angela

Allyce, Angela
 113 of 100
 Allyce, Angela

plete the electrical circuit instead of a spring fork. The diaphragm is held between a wooden ring "M" and a cover disk "N." Note that the thickness of "M" should be slightly less than the height of the knob, so that they will always be in contact. In Fig. 4 is shown the method of turning the cover disk "N" on a lathe faceplate. White pine is recommended because this soft wood is close-grained and not likely to split. By drilling a small pilot hole in the wood when first put on the lathe, it is possible to center the job properly when it is turned over for turning the other side. The hole in the cover disk "N" should correspond to the small end of the mouthpiece used.

As stated before, an induction coil will greatly improve the efficiency of the instrument, and this will require a three-point switch. In the original job, a neat push button was installed just below the transmitter on the door of the box, and the contacts arranged as shown, but it may be found easier to build up a button switch on the side of the box. The importance of an induction coil has been noted, and if you are able to purchase a pair from an electrical supply house, by all means do so as it is a considerable job to wind one neatly. The primary coils are not so hard, but the fine wire of the secondary is like trying to wind a spool of thread. If you are obliged to do the job, however, insert the ends of a bundle of stovepipe wire, $\frac{1}{4}$ by $3\frac{1}{2}$ in., in blocks of wood, 1 in. square, as in Fig. 3. Wrap a sheet of paper around about four times and give it a coat of shellac. When dry, start winding the primary coil, leaving one end project through a hole in the wood block. This coil should be two layers of No. 20 s.c.c. copper wire, with a sheet of paper around each layer, and shellacked. The secondary is No. 34 silk-covered wire and is wound just like the primary except that it has twelve layers. Ends of the wires should be drawn through holes in the blocks, as shown. Cover the finished coil with two or three wrappings of paper and shellac to protect the wires.

Wiring plans are shown in detail in Figs. 5 and 6. Use insulated wire cable



with all connections soldered. Some of the connections to transmitter and push button on the door can be soldered to the hinges, as shown.

Enameled tile may be cleaned with a cloth dampened with kerosene.



Abstract

Pharmaceutical companies, like food manufacturers, are under increasing pressure to provide information on the safety of their products. The Food and Drug Administration (FDA) has issued guidance on the labeling of drugs, and the European Commission has issued similar guidance. The pharmaceutical industry has responded by providing more information on the safety of their products, but there is still a need for more information. The FDA has issued guidance on the labeling of drugs, and the European Commission has issued similar guidance. The pharmaceutical industry has responded by providing more information on the safety of their products, but there is still a need for more information.

1000

[illegible]

100

1. **Identify the main components of the system.**
 2. **Define the scope and objectives of the study.**
 3. **Review the literature related to the topic.**
 4. **Develop a methodology for data collection and analysis.**
 5. **Collect and analyze the data.**
 6. **Interpret the results and draw conclusions.**
 7. **Discuss the implications of the findings.**
 8. **Summarize the key points of the study.**
 9. **Provide recommendations for future research.**
 10. **Conclude the study.**



1. **Introduction**
 2. **Methodology**
 3. **Results**
 4. **Discussion**
 5. **Conclusion**
 6. **References**
 7. **Appendix**
 8. **Index**
 9. **Glossary**
 10. **Notes**
 11. **Footnotes**
 12. **Endnotes**
 13. **Supplementary Material**
 14. **Tables**
 15. **Figures**
 16. **Equations**
 17. **Formulas**
 18. **Equations**
 19. **Formulas**
 20. **Equations**
 21. **Formulas**
 22. **Equations**
 23. **Formulas**
 24. **Equations**
 25. **Formulas**
 26. **Equations**
 27. **Formulas**
 28. **Equations**
 29. **Formulas**
 30. **Equations**
 31. **Formulas**
 32. **Equations**
 33. **Formulas**
 34. **Equations**
 35. **Formulas**
 36. **Equations**
 37. **Formulas**
 38. **Equations**
 39. **Formulas**
 40. **Equations**
 41. **Formulas**
 42. **Equations**
 43. **Formulas**
 44. **Equations**
 45. **Formulas**
 46. **Equations**
 47. **Formulas**
 48. **Equations**
 49. **Formulas**
 50. **Equations**
 51. **Formulas**
 52. **Equations**
 53. **Formulas**
 54. **Equations**
 55. **Formulas**
 56. **Equations**
 57. **Formulas**
 58. **Equations**
 59. **Formulas**
 60. **Equations**
 61. **Formulas**
 62. **Equations**
 63. **Formulas**
 64. **Equations**
 65. **Formulas**
 66. **Equations**
 67. **Formulas**
 68. **Equations**
 69. **Formulas**
 70. **Equations**
 71. **Formulas**
 72. **Equations**
 73. **Formulas**
 74. **Equations**
 75. **Formulas**
 76. **Equations**
 77. **Formulas**
 78. **Equations**
 79. **Formulas**
 80. **Equations**
 81. **Formulas**
 82. **Equations**
 83. **Formulas**
 84. **Equations**
 85. **Formulas**
 86. **Equations**
 87. **Formulas**
 88. **Equations**
 89. **Formulas**
 90. **Equations**
 91. **Formulas**
 92. **Equations**
 93. **Formulas**
 94. **Equations**
 95. **Formulas**
 96. **Equations**
 97. **Formulas**
 98. **Equations**
 99. **Formulas**
 100. **Equations**
 101. **Formulas**
 102. **Equations**
 103. **Formulas**
 104. **Equations**
 105. **Formulas**
 106. **Equations**
 107. **Formulas**
 108. **Equations**
 109. **Formulas**
 110. **Equations**
 111. **Formulas**
 112. **Equations**
 113. **Formulas**
 114. **Equations**
 115. **Formulas**
 116. **Equations**
 117. **Formulas**
 118. **Equations**
 119. **Formulas**
 120. **Equations**
 121. **Formulas**
 122. **Equations**
 123. **Formulas**
 124. **Equations**
 125. **Formulas**
 126. **Equations**
 127. **Formulas**
 128. **Equations**
 129. **Formulas**
 130. **Equations**
 131. **Formulas**
 132. **Equations**
 133. **Formulas**
 134. **Equations**
 135. **Formulas**
 136. **Equations**
 137. **Formulas**
 138. **Equations**
 139. **Formulas**
 140. **Equations**
 141. **Formulas**
 142. **Equations**
 143. **Formulas**
 144. **Equations**
 145. **Formulas**
 146. **Equations**
 147. **Formulas**
 148. **Equations**
 149. **Formulas**
 150. **Equations**
 151. **Formulas**
 152. **Equations**
 153. **Formulas**
 154. **Equations**
 155. **Formulas**
 156. **Equations**
 157. **Formulas**
 158. **Equations**
 159. **Formulas**
 160. **Equations**
 161. **Formulas**
 162. **Equations**
 163. **Formulas**
 164. **Equations**
 165. **Formulas**
 166. **Equations**
 167. **Formulas**
 168. **Equations**
 169. **Formulas**
 170. **Equations**
 171. **Formulas**
 172. **Equations**
 173. **Formulas**
 174. **Equations**
 175. **Formulas**
 176. **Equations**
 177. **Formulas**
 178. **Equations**
 179. **Formulas**
 180. **Equations**
 181. **Formulas**
 182. **Equations**
 183. **Formulas**
 184. **Equations**
 185. **Formulas**
 186. **Equations**
 187. **Formulas**
 188. **Equations**
 189. **Formulas**
 190. **Equations**
 191. **Formulas**
 192. **Equations**
 193. **Formulas**
 194. **Equations**
 195. **Formulas**
 196. **Equations**
 197. **Formulas**
 198. **Equations**
 199. **Formulas**
 200. **Equations**
 201. **Formulas**
 202. **Equations**
 203. **Formulas**
 204. **Equations**
 205. **Formulas**
 206. **Equations**
 207. **Formulas**
 208. **Equations**
 209. **Formulas**
 210. **Equations**
 211. **Formulas**
 212. **Equations**
 213. **Formulas**
 214. **Equations**
 215. **Formulas**
 216. **Equations**
 217. **Formulas**
 218. **Equations**
 219. **Formulas**
 220. **Equations**
 221. **Formulas**
 222. **Equations**
 223. **Formulas**
 224. **Equations**
 225. **Formulas**
 226. **Equations**
 227. **Formulas**
 228. **Equations**
 229. **Formulas**
 230. **Equations**
 231. **Formulas**
 232. **Equations**
 233. **Formulas**
 234. **Equations**
 235. **Formulas**
 236. **Equations**
 237. **Formulas**
 238. **Equations**
 239. **Formulas**
 240. **Equations**
 241. **Formulas**
 242. **Equations**
 243. **Formulas**
 244. **Equations**
 245. **Formulas**
 246. **Equations**
 247. **Formulas**
 248.

These indicators, which are used to assess the overall health of the economy, are used to measure the economic conditions of the country. The indicators are used to assess the economic conditions of the country. The indicators are used to assess the economic conditions of the country.



100

© 1999 by The McGraw-Hill Companies, Inc. All rights reserved. This publication is protected by copyright. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage or retrieval system, without prior written permission from The McGraw-Hill Companies, Inc.



Modern LAMP

BY THOMAS HERRINGTON

Modern. The definition of the word is "of the present time; contemporary." It is a word that is used to describe a style or a person.

Modern design is a style that is characterized by clean lines, geometric shapes, and a lack of ornamentation. It is a style that is often associated with the mid-20th century, but it has been around for a long time. Modern design is a style that is constantly evolving, and it is a style that is always looking for new ways to express itself.

Modern design is a style that is characterized by clean lines, geometric shapes, and a lack of ornamentation. It is a style that is often associated with the mid-20th century, but it has been around for a long time. Modern design is a style that is constantly evolving, and it is a style that is always looking for new ways to express itself.

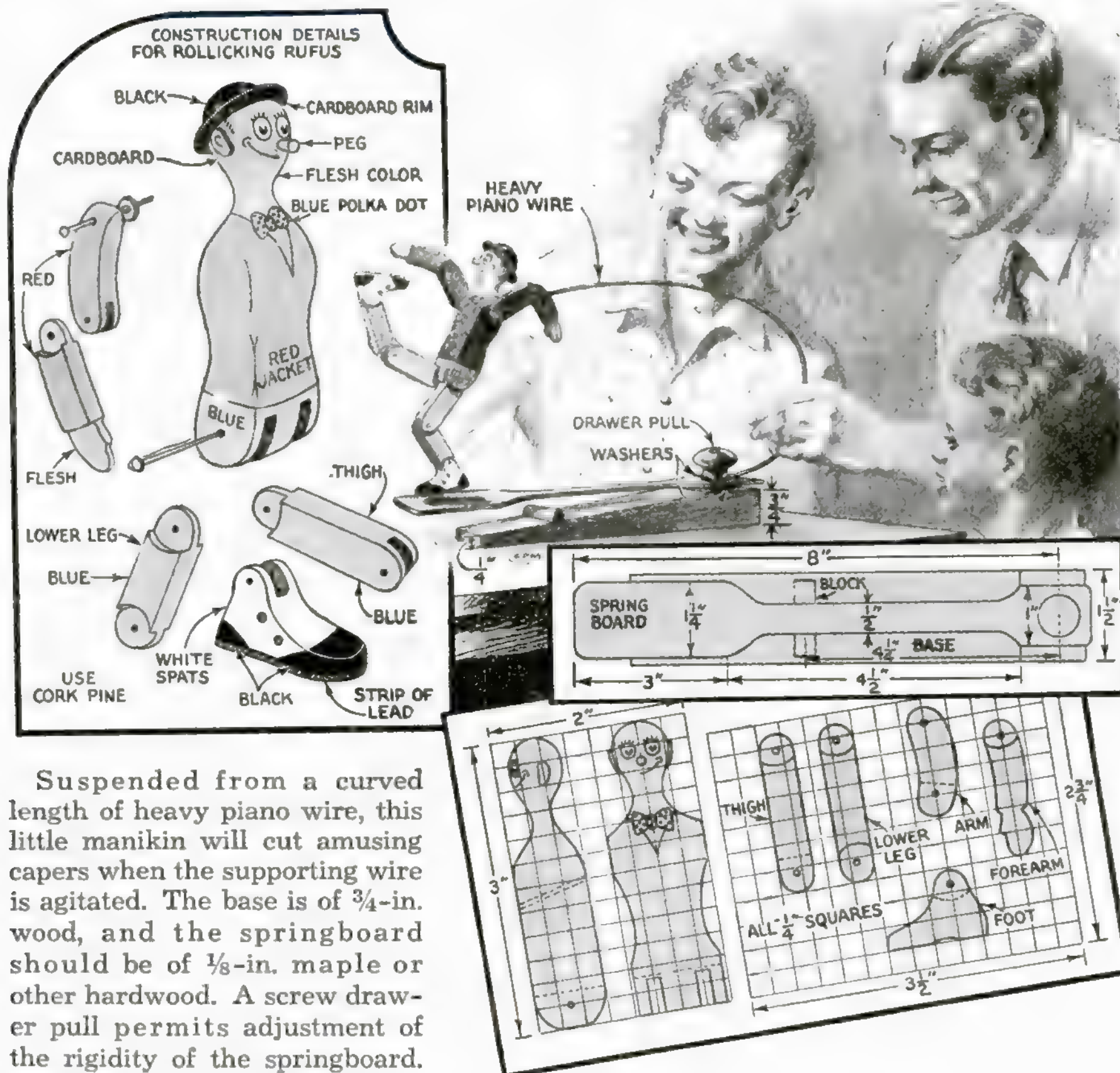
Modern design is a style that is characterized by clean lines, geometric shapes, and a lack of ornamentation. It is a style that is often associated with the mid-20th century, but it has been around for a long time. Modern design is a style that is constantly evolving, and it is a style that is always looking for new ways to express itself.



Modern design is a style that is characterized by clean lines, geometric shapes, and a lack of ornamentation. It is a style that is often associated with the mid-20th century, but it has been around for a long time. Modern design is a style that is constantly evolving, and it is a style that is always looking for new ways to express itself.

Modern design is a style that is characterized by clean lines, geometric shapes, and a lack of ornamentation. It is a style that is often associated with the mid-20th century, but it has been around for a long time. Modern design is a style that is constantly evolving, and it is a style that is always looking for new ways to express itself.

"Rollicking Rufus" Will Dance Amusing Jigs



Suspended from a curved length of heavy piano wire, this little manikin will cut amusing capers when the supporting wire is agitated. The base is of $\frac{3}{4}$ -in. wood, and the springboard should be of $\frac{1}{8}$ -in. maple or other hardwood. A screw drawer pull permits adjustment of the rigidity of the springboard. Washers should be put above and below the board. The figure is carved from soft pine. Sizes of the legs and arms, which are pivoted loosely to the body, are given in the squared drawing. Note that a thin strip of lead is fastened to the underside of the feet to bring them down with a "snap" on the springboard. A good paint job makes the figure look quite realistic. Two coats are advisable, one in flat white or gray paint, and the second in the finished color. Flesh tint for the face and hands can be made by mixing a very small amount of red and orange with white. The base should be gray or black and the springboard should be varnished a natural color. When the paint is dry, sandpaper the joints smooth where they rub together and wax them to reduce friction.

Vacuum-Clean Your Hot-Air Furnace Pipes

Drapes, decorations and other things in the hot-air heated home stay clean longer if the air pipes of the furnace are cleaned at least once a year with a vacuum cleaner. Using the long hose and narrow nozzle, the hot-air pipes can be cleaned quite a distance down from each register. In a similar way, the cold-air intake can be cleaned. Of course, a thorough job requires getting into the furnace end of the pipes. If insulation on the pipes does not make this too difficult, it is worth while. However, most of the dirt will be found rather near to the registers where it is easy to reach.—C. E. Packer, Chicago.



Female Workers' Interests

**Representatives at National
Law Center Conference**

As the conference, I have seen and felt the importance of the law center. The law center is a place where the law is made, and it is a place where the law is made. The law center is a place where the law is made, and it is a place where the law is made.

**Attorney General William
French Smith**

Attorney General William French Smith, who has been in the law center for many years, is a man who has been in the law center for many years.



Attorney General William French Smith, who has been in the law center for many years, is a man who has been in the law center for many years.

Attorney General William French Smith

Attorney General William French Smith, who has been in the law center for many years, is a man who has been in the law center for many years.



Attorney General William French Smith, who has been in the law center for many years, is a man who has been in the law center for many years.

Attorney General William French Smith

Attorney General William French Smith, who has been in the law center for many years, is a man who has been in the law center for many years.



Attorney General William French Smith, who has been in the law center for many years, is a man who has been in the law center for many years.

Attorney General William French Smith

Attorney General William French Smith, who has been in the law center for many years, is a man who has been in the law center for many years.

Attorney General William French Smith, who has been in the law center for many years, is a man who has been in the law center for many years.



Wooden Tongs to Handle Hot Clothes Prevent Burned Fingers

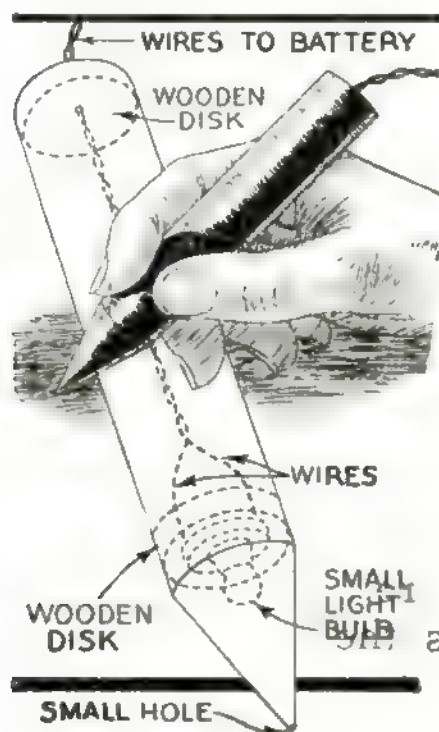


Hardwood Tongs Prevent Burning the Hands When Removing Hot Clothes from Washboiler

For lifting hot clothes from a wash-boiler, or for feeding them into a wringer, these wooden tongs will save much time and eliminate burned fingers. They are made from a piece of hardwood, which is cut to the shape shown with a scroll saw. A bolt through the tongs at the point indicated will prevent splitting.

Electric Pencil Records Data on Photo Films

With this electric pencil, data are recorded on an undeveloped film without the mess and bother of chemical inks. The recording is done as an actual part of the photo by a tiny light beam that exposes

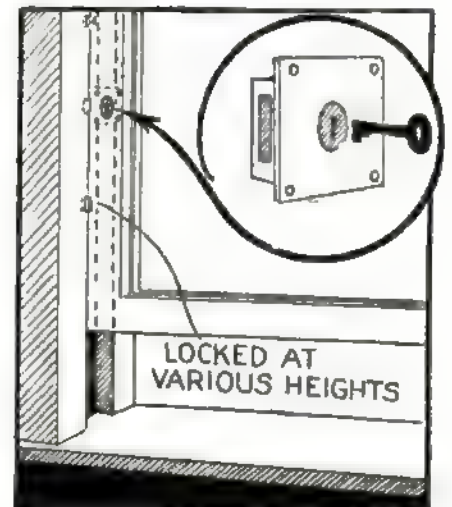


the portion of the film on which the writing is done. The barrel of the pencil is a $\frac{3}{4}$ by 4-in. tube with wood disks fitted snugly into the ends, one disk carrying a socket with 6-volt lamp, which is wired to a flashlight battery or toy transformer. Over the lamp end of the pencil, a cone

is fitted tightly. This has a small hole at the apex through which light shines to expose the film.—D. J. Egan, Paterson, N. J.

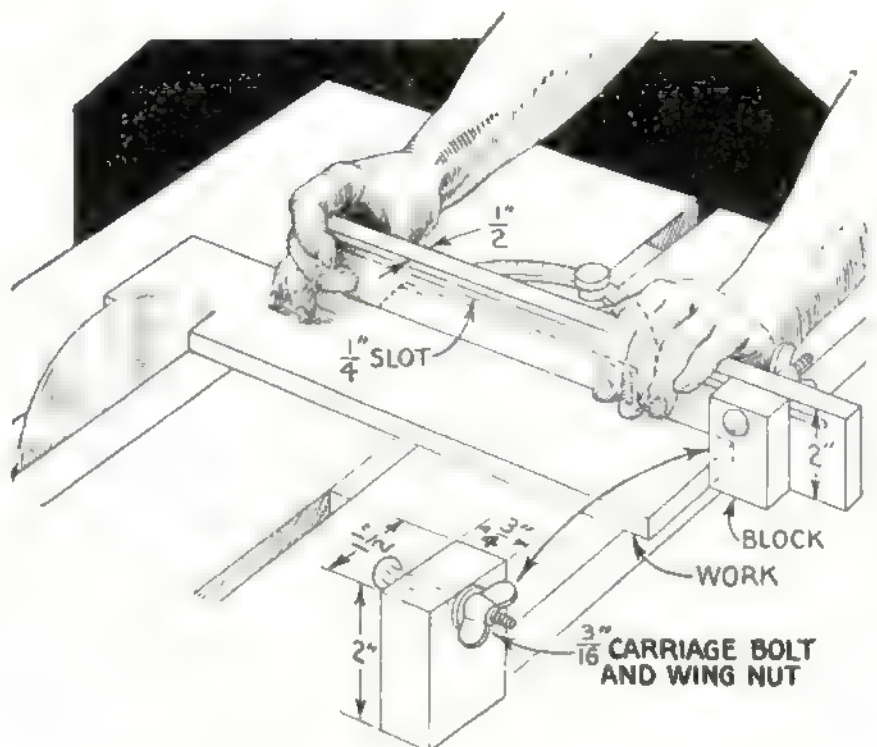
Cabinet Locks Make Windows Burglar Proof

By installing small cabinet locks, of the type shown, in your windows, you can leave them partly raised for ventilation without any fear of a burglar entering through them. These locks can be purchased for ten or fifteen cents each, and one is installed in each sash. Small recesses to take the lock plungers are cut in each window casing, spacing them according to the heights to which you wish the window raised.—Jas. Gibson, Columbus, Ohio.



Stop Gauge for Your Circular Saw

A simple stop gauge for your circular saw is made by cutting a slot in a piece of hardwood along which an adjustable block can be moved. The slot should extend just high enough above the metal gauge to permit turning the wing nut on the bolt by which the stop block is secured. A gauge of this type will be found accurate and it is easily adjusted.



Stop Block on Miter Gauge of Circular Saw Assures Accurate Cutting of Duplicate Work



Service technicians can't afford to be without their own portable pump.

There's More Than One Way To Measure A Pump

When you think of a pump as being "big" or "small," you may be thinking about capacity or flow rate. But there's another way to think about it. It's a pump's ability to do a job in a certain amount of time. That's what a portable pump does. It's a pump that can be used in a variety of ways. It can be used to pump water, oil, or other liquids. It can be used to pump air, or even to pump a mixture of air and liquid. The pump's ability to do a job in a certain amount of time is what makes it a portable pump. It's a pump that can be used in a variety of ways. It can be used to pump water, oil, or other liquids. It can be used to pump air, or even to pump a mixture of air and liquid. The pump's ability to do a job in a certain amount of time is what makes it a portable pump.

A portable pump is a pump that can be used in a variety of ways. It can be used to pump water, oil, or other liquids. It can be used to pump air, or even to pump a mixture of air and liquid. The pump's ability to do a job in a certain amount of time is what makes it a portable pump.

Make Your Own Shop Equipment



Photo courtesy of

the manufacturer of the pump. The pump is a portable unit that can be used in a variety of ways. It can be used to pump water, oil, or other liquids. It can be used to pump air, or even to pump a mixture of air and liquid. The pump's ability to do a job in a certain amount of time is what makes it a portable pump.

A portable pump is a pump that can be used in a variety of ways. It can be used to pump water, oil, or other liquids. It can be used to pump air, or even to pump a mixture of air and liquid. The pump's ability to do a job in a certain amount of time is what makes it a portable pump.

There's more than one way to measure a pump. It can be measured by its capacity, its flow rate, or its ability to do a job in a certain amount of time.

A portable pump is a pump that can be used in a variety of ways. It can be used to pump water, oil, or other liquids. It can be used to pump air, or even to pump a mixture of air and liquid. The pump's ability to do a job in a certain amount of time is what makes it a portable pump.



Photo courtesy of

the manufacturer of the pump. The pump is a portable unit that can be used in a variety of ways. It can be used to pump water, oil, or other liquids. It can be used to pump air, or even to pump a mixture of air and liquid. The pump's ability to do a job in a certain amount of time is what makes it a portable pump.



between plants after the 1970s. The researchers found that the plants that were the most resistant to the disease were the ones that had the most genetic diversity. The researchers also found that the plants that were the most resistant to the disease were the ones that had the most genetic diversity. The researchers also found that the plants that were the most resistant to the disease were the ones that had the most genetic diversity.

These results suggest that the plants that were the most resistant to the disease were the ones that had the most genetic diversity. The researchers also found that the plants that were the most resistant to the disease were the ones that had the most genetic diversity.



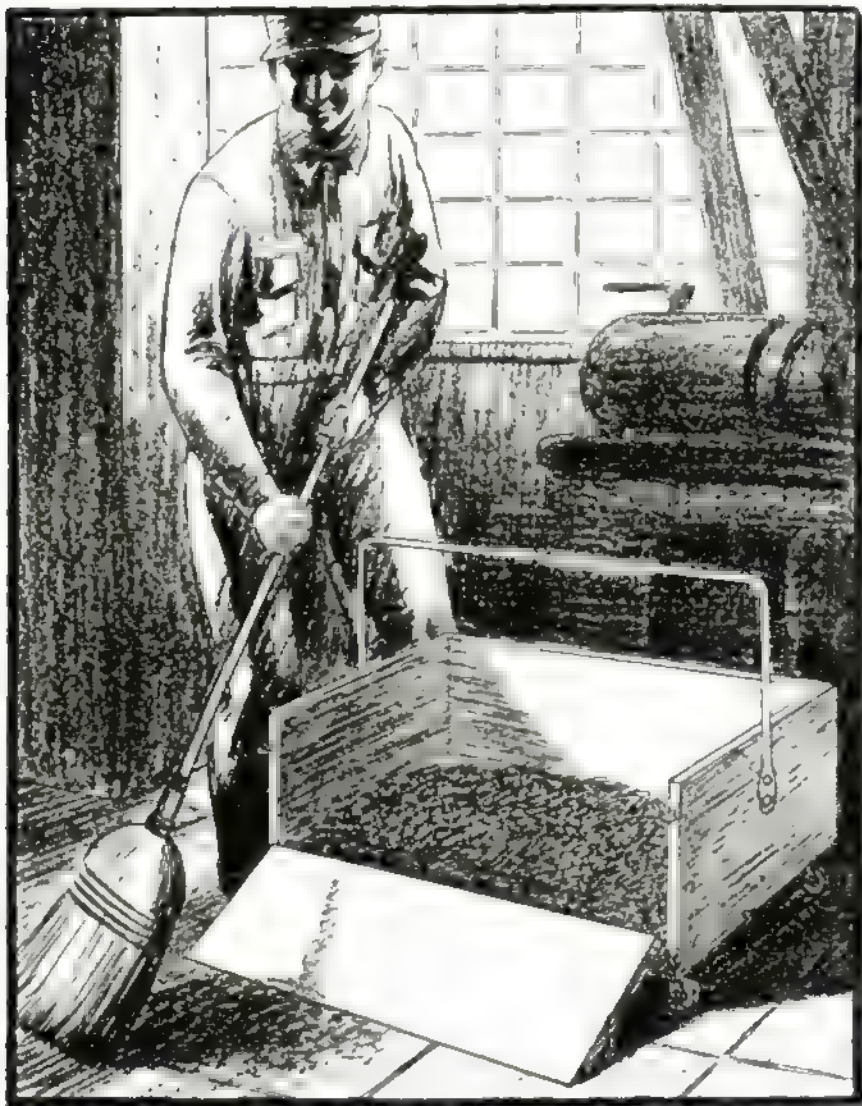
of the plants. The researchers found that the plants that were the most resistant to the disease were the ones that had the most genetic diversity. The researchers also found that the plants that were the most resistant to the disease were the ones that had the most genetic diversity. The researchers also found that the plants that were the most resistant to the disease were the ones that had the most genetic diversity.



These results suggest that the plants that were the most resistant to the disease were the ones that had the most genetic diversity. The researchers also found that the plants that were the most resistant to the disease were the ones that had the most genetic diversity.

These results suggest that the plants that were the most resistant to the disease were the ones that had the most genetic diversity. The researchers also found that the plants that were the most resistant to the disease were the ones that had the most genetic diversity.

These results suggest that the plants that were the most resistant to the disease were the ones that had the most genetic diversity. The researchers also found that the plants that were the most resistant to the disease were the ones that had the most genetic diversity. The researchers also found that the plants that were the most resistant to the disease were the ones that had the most genetic diversity.

Drop-Side Lathe Box Needs No Dustpan

Side of Lathe Scrap Box Drops Down So That Sawdust and Shavings Can Be Swept into It

To save time in hunting up a dustpan, when cleaning up around the lathe, one woodworker designed a lathe scrap box with a drop side. The top edge of this side is beveled to fit snugly against the floor and the scattered sawdust and shavings may be swept quickly into the container.

"Paddle-Wheel" Sign Made from Junk Parts

Here is an unusual revolving display sign that attracts the eye by its odd move-

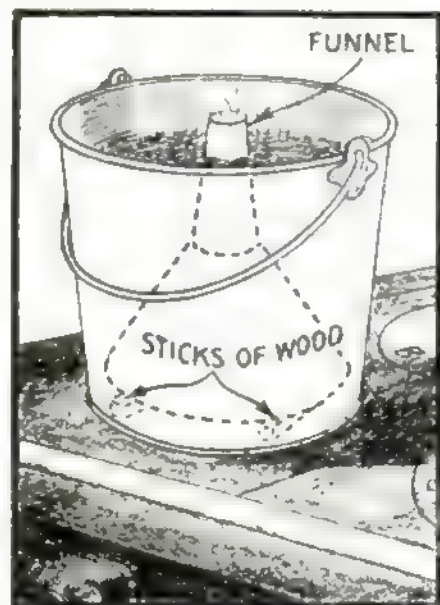


Unusual Construction Attracts the Eye to This Rotating Sign, Which Is Driven by an Electric Motor

ment and construction. It was built entirely from junk parts and therefore its cost was negligible. The sign is kept in motion by a $\frac{1}{4}$ -hp. electric motor hooked up to the gears of an old washing machine, which steps down the speed so that the sign turns slowly. Buggy wheels support the "paddle-wheel" blades of the sign, which were made of galvanized iron, and were hung on rods bolted to the rim of the wheels. These blades, with their advertising message, remain in a vertical position as the sign turns, and the sign can be read from either direction, the blades being lettered on both sides.

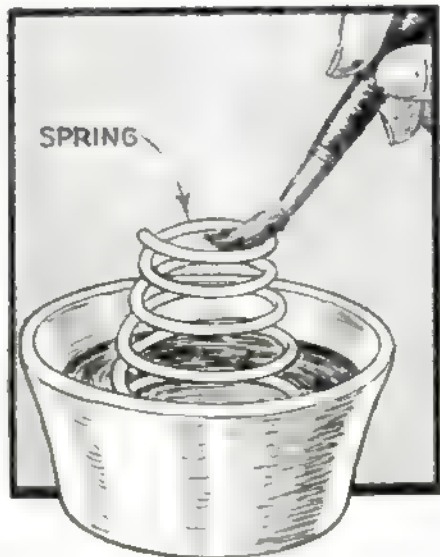
Funnel in Pail Makes Poultry Feed Cooker

To cook poultry mash quickly without burning it, place two sticks across the bottom of a pail, set an inverted funnel upon these and pour the grain around it, leaving about 1 in. of the spout projecting. Now pour water over the mash until it appears in the funnel spout, place it upon the stove and allow it to boil. Hot water will be ejected in spurts from the funnel and will cook the mash in a short time.



Coil Spring in Water Pan Helps to Clean Artists' Brushes

Soldered to the bottom of a water pan, a coil spring, of the type shown, will be found handy by artists to clean brushes when doing water-color work. The brush is dipped into the water inside the spring, after which the bristles are wiped off in the top coil.—Walter Newton, West Haven, Conn.







best on a mat surface obtained by scratch brushing or sand-blasting. The work is coated with a slow-drying varnish, and, while still "tacky," the surface is held over a smoky flame so that the deposited soot adheres to the varnish. The shading is best controlled in a darkened room. The finish is easily marred, and should be handled carefully until it can be fixed by immersion or spraying with clear varnish as in Fig. 16.

Color is an important part of metal finishing, both for beauty and for harmonizing one piece of metal with another. Barring paint and lacquer finishes, chemical action is most frequently used in effecting certain colors in brass and copper projects. Successful chemical coloring demands that the work must be absolutely clean. Greasy work should be washed with gasoline or benzine. Final traces of grease are then removed by scrubbing with a strong solution of caustic potash or washing soda, as shown in Fig. 17. When you do this it is advisable to wear rubber gloves. The work is then immersed in an acid bath or "pickle," as in Fig. 18. The solution specified is a bright dip and should be allowed to act on the work for a few seconds only. The work is rinsed in clean water and is then dried in clean, warm sawdust, as shown in Fig. 19. After drying, the work is rubbed with a clean, soft cloth, being very careful not to touch it with the hands, which would defeat the purpose of cleaning it. Use clean, rubber gloves to handle the parts. Then you are ready to immerse it into the coloring solution. However, drying with sawdust is not necessary if the work is to go to the color bath immediately, but should follow the color treatment. Chemical colors are many and varied, and they do little more than touch the surface. The formulas in the table of coloring solutions will give you considerable choice, and present no difficulties provided the work is perfectly clean. Colors obtained by chemical action are usually not permanent, but should be given a protective coating of beeswax or clear lacquer.

¶ When India ink is used in quantities, it is cheaper to make it up yourself from the stick form. The stick is broken up into small quantities and allowed to dissolve for several days in weak ammonia water.

Scraper on Wagon Box Removes Clay and Gumbo from Shovels

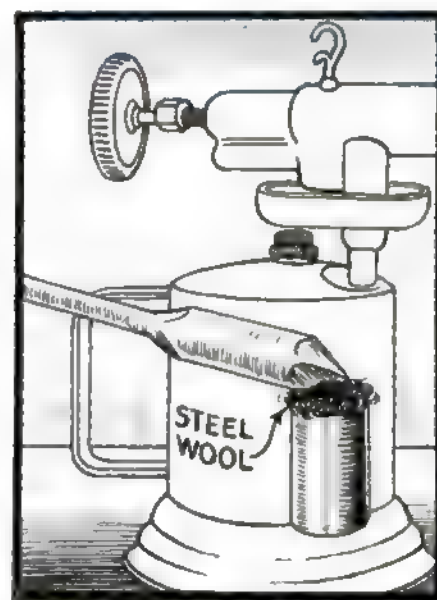


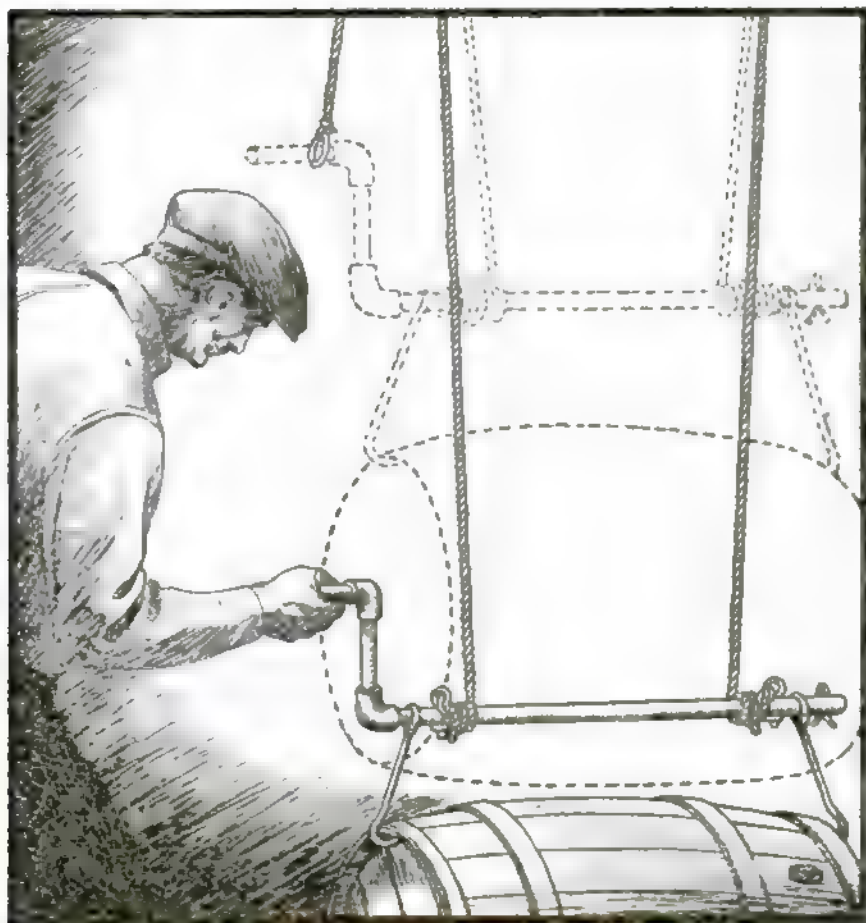
Scraper Made of Flat Iron and Screwed to Wagon Box for Cleaning Spade or Shovel

When hauling soil of clay or gumbo content, it is necessary to clean the blade of the spade or shovel frequently. Instead of stopping to do this with a hand scraper, one farmer screwed a piece of flat iron to the side of his wagon box where it could be used conveniently for this purpose.—G. E. Hendrickson, Argyle, Wis.

Steel Wool on Blowtorch Cleans Soldering Iron

For want of a cloth pad upon which to clean a hot soldering iron, many mechanics brush the point on their sleeve or trousers each time it is removed from the heating torch. A better method is to solder a tin tube to the side of the blowtorch and use it as a holder into which a roll of steel wool, waste or cloth may be forced and held as a wiping pad.





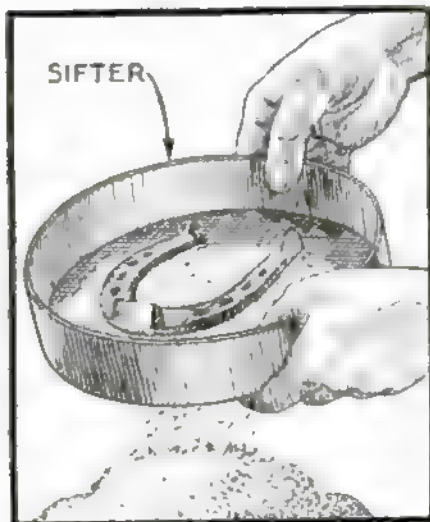
Simple Hoist or Windlass for Raising Oil or Vinegar Barrels in Stores to Dispense the Contents

Simple Hoist to Raise Vinegar or Oil Barrels

In retail establishments, where vinegar, oil or other liquid commodities are dispensed, the task of elevating the barrel to a convenient height is often difficult. If a pair of cables are suspended from the ceiling to support a crank assembly of pipe as shown, the work may be accomplished easily. The sliding hooks engage the chimes of the barrel, which is elevated by turning the crank. A third rope or cable, also suspended from the ceiling, is provided with a steel ring which may be slipped over the crank handle to hold the barrel at the desired height.

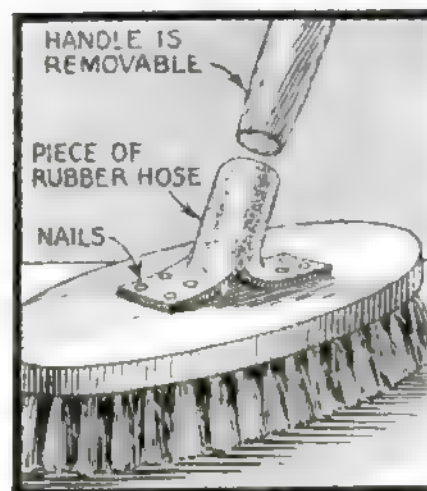
Horseshoe Aids in Using Hand Sifter

When small quantities of sand, or similar substances, must be sifted for some particular job, one contractor places a horseshoe on the screen as shown. In the operation of the sifter, the shoe slides back and forth, pulverizing the lumps and grinding the sand through the screen rapidly.

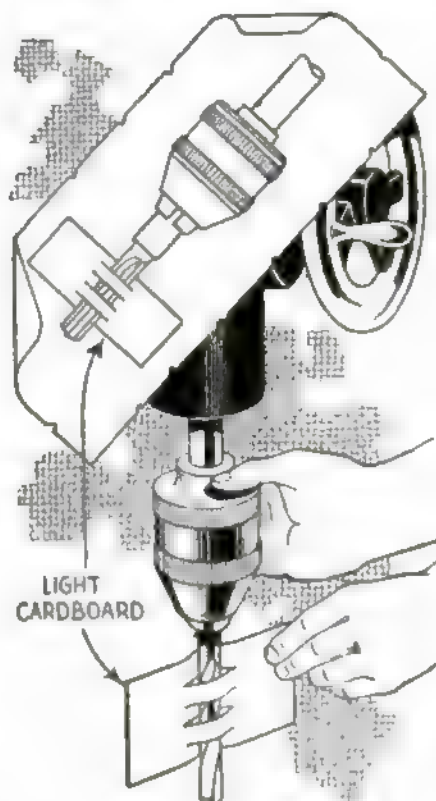


Piece of Hose Attaches Handle to Scrub Brush

In a dairy or milk station, where the cleaning of cans and vats makes it necessary to change frequently from a hand brush to an extension brush, a combination of both may be improvised by splitting a short piece of rubber hose and nailing it to the back of an ordinary brush. The extension handle may be inserted or removed in a jiffy.



Shavings Blower for Your Drill Press

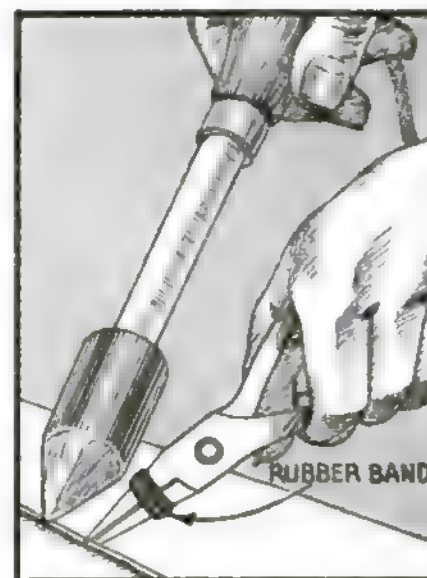


When drilling or routing in a drill press, shavings often collect and cover the guide lines or center marks. These shavings may be removed by using this blower, which is a rectangular piece of cardboard with slits cut in the center to fit on the drill bit as shown. Only cardboard should be used for this purpose,

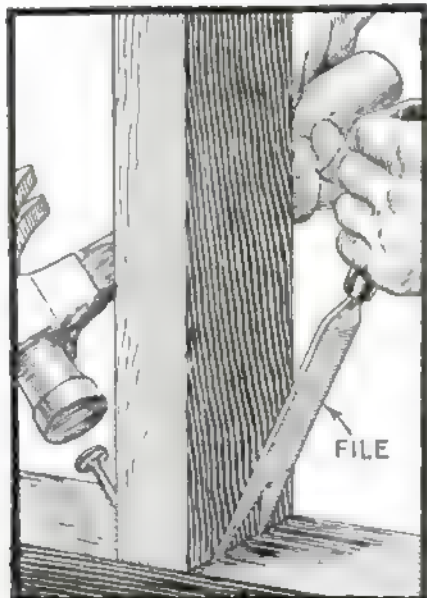
as heavier material might involve the risk of injuring the worker's hands.

Rubber Band Improves Small-Nose Pliers

A rubber band, wrapped tightly around the nose of a pair of small pliers, is an aid in holding small objects. The band holds the nose of the pliers tightly together so that small parts are not likely to slip out.



Simple Tool Aids in Toenailing Studs and Joists

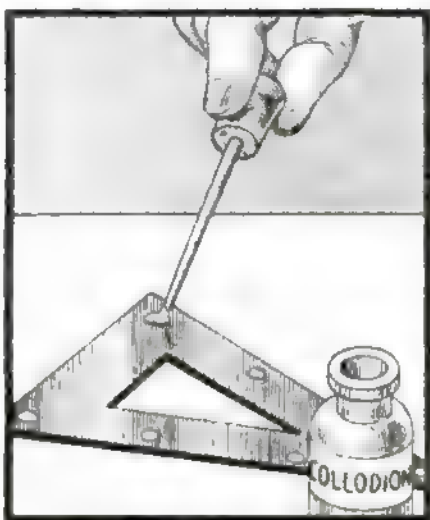


When toenailing studs, joists or rafters, carpenters will find this tool convenient, as it will hold the end of the stick squarely on the line while the first nails are driven. The tool is made by grinding one end of a discarded file to a forked

shape, and attaching a wooden handle by which it may be forced into place.

To Prevent Ink Smears from Triangle

Draftsmen who sometimes experience difficulty by having fresh ink lines smeared over a drawing when using a celluloid rule or triangle, will find that this trouble can be eliminated by applying a few drops of celluloid glue, or collodion, to the underside of the instrument. These dots, properly placed and allowed to dry, will serve as feet to elevate the triangle above the surface of the drawing.



Clothespin Guide for Striping Brush

One of the simplest devices for guiding and gauging work with a fine striping brush is a common clothespin. The handle of the brush is wedged between the legs of the pin, the anchorage thus provided



being sufficiently secure for all practical purposes. If retracing is necessary, the guide will straddle the line so that paint is not smeared over the surrounding surfaces.



Boards Projecting from Pile of Lumber Serve as a Temporary Workbench for Retail Dealers

Boards Projecting from Lumber Pile Serve as Workbench

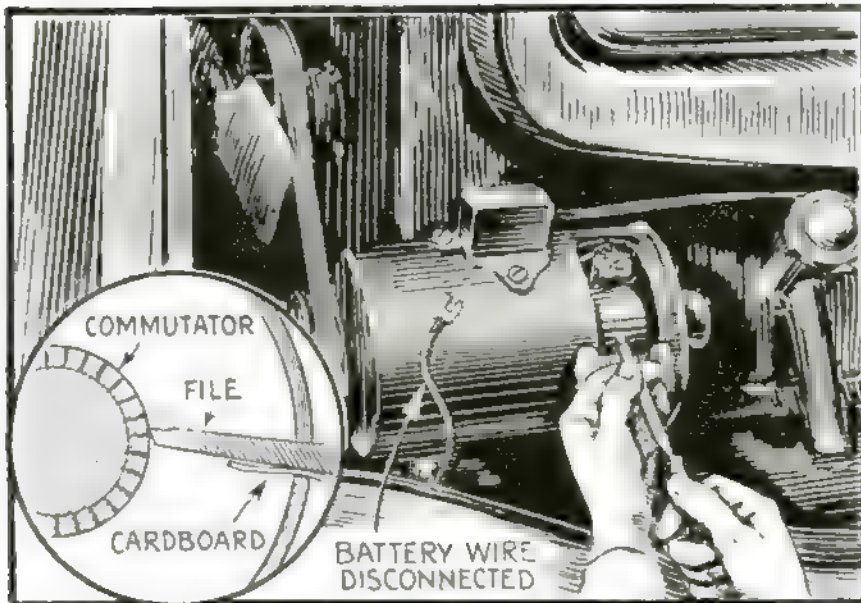
Retail lumber dealers whose trade requires certain squaring, ripping or other work on the stock delivered, will find that a few boards left projecting from the lumber pile will serve as supports for an improvised workbench for such operations. The same idea may be carried out in making steps to the top of the pile, only in this case each projecting board is above and to one side of each preceding one.

Spot of Glue Displays Samples of Sacked Seeds

When sacks of small seed, such as clover, alfalfa, timothy, etc., are opened to display the contents, much of the valuable commodity is scattered about and wasted by careless and inquisitive persons. To avoid this, one dealer dabs a spot of quick-drying glue on the descriptive tag of each sack, and then pushes it into the contents so that a portion of seed adheres. The sacks are closed again and the tags attached. From these tags, customers may examine the seeds.



Generator Commutator Trued Up without Removing Armature

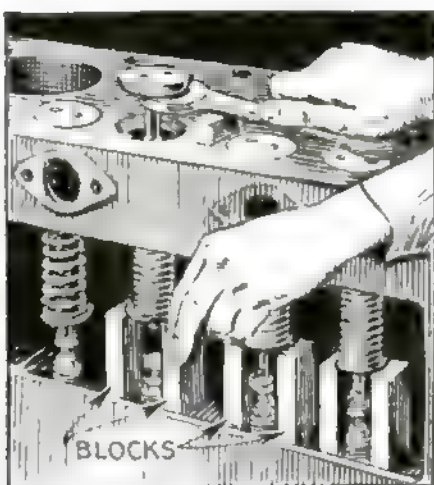


File Used in a Manner Similar to That of a Lathe Cutting Tool to True Up Generator Commutator

In an emergency a three-cornered file may be used to true up a worn commutator on a generator. The end of the file is ground to the shape shown, after which it is used as a cutting tool in a manner similar to that of a cutting tool on a lathe. After removing the battery wire from the electrical cut-out, the motor is started and run at idling speed. Then the ground end of the file is held against the commutator, steadying the file on the generator housing. Before starting the work, place a piece of cardboard between the file and housing to avoid a short circuit. Hold the file steady, resting one finger against the housing as a guide, and take very light cuts.—S. R. Bobowski, Chicago.

Blocks and Wrench Serve as Emergency Valve Lifter

After removing the cylinder head to grind the valves on my car, I found that the only valve lifter available would not work. To obviate this difficulty, I turned the motor over to raise the valve. Then, with an end wrench and a small block, the

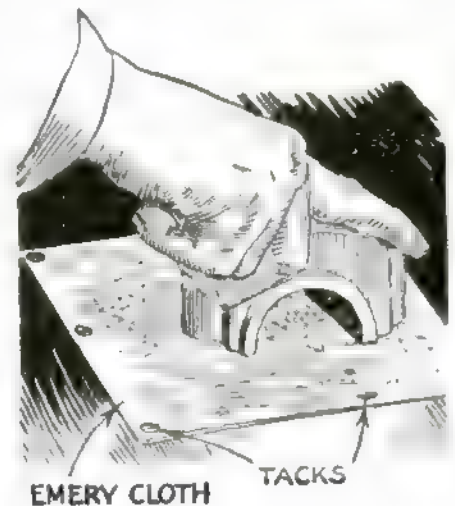


valve was raised still higher as shown, after which short blocks were set under the spring to keep it compressed. It was then a simple matter to push the valve stem down and remove

the keeper, leaving the blocks in place until the valve was finished, after which the keeper was replaced and the blocks removed.—Tom H. Hopes, Lakewood, Ohio.

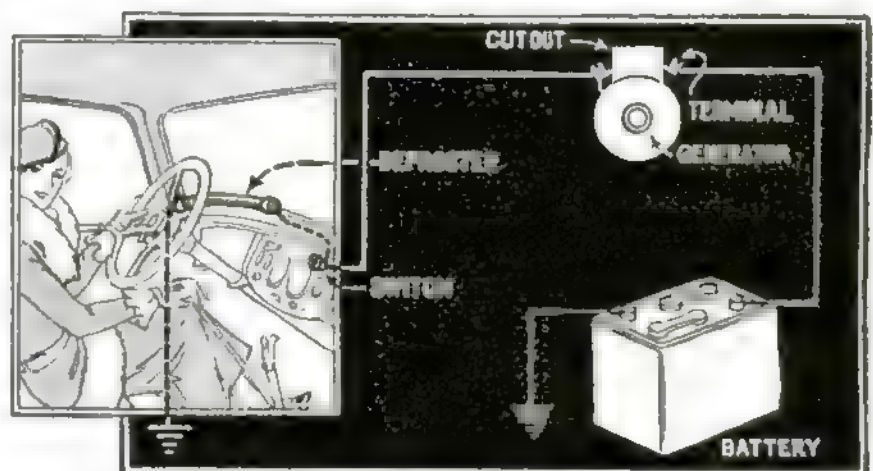
Connecting-Rod Bearings Dressed Down with Emery Cloth

Tacked to a smooth board or bench top, a sheet of fine emery cloth provides an abrasive surface on which to dress down connecting-rod bearings. Use of emery cloth in this way assures that both ends of the bearing will be dressed down uniformly. It is a good idea to wash the bearing in gasoline to remove any particles of emery before putting it on the shaft.—Spencer A. Jones, Belleville, N. J.



Car Accessories Automatically Shut Off When Motor Stops

To avoid leaving a heater, defroster, or other accessory turned on when your car is parked, connect the accessories so that they are automatically shut off when the generator stops charging. To do this, one side of the accessory is connected to the electrical cut-out terminal that leads from

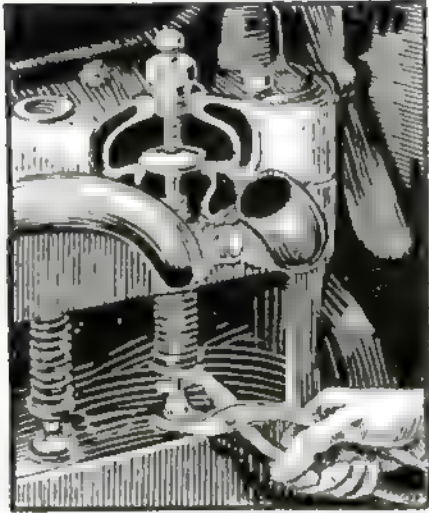


Heater or Windshield Defroster Connected to Electrical Cut-Out Is Automatically Shut Off

the generator, while the other side, of course, is grounded. The same result can be had on some cars by connecting the accessory to the "dead" terminal of the ignition switch so that the circuit is broken when the switch is turned off.—P. F. Rossman, Detroit, Mich.

Tool Holds Down Valve to Insert New Spring Keepers

When it is necessary to compress a valve spring to replace a broken or bent spring keeper, a tool can be made from the shell



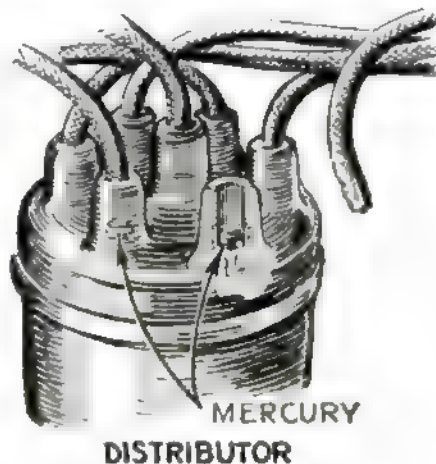
of an old spark plug to hold down the valve without removing the cylinder head, provided the motor has the valves under the spark-plug coils. The shell is tapped inside to take a long stud or cap screw.

In use, the tool is screwed into the spark-plug hole above the valve to be repaired, after which the cap screw is driven down against the valve.—A. O. Stanfield, Orange, Calif.

Assuring Electrical Contact of Spark-Plug Cables

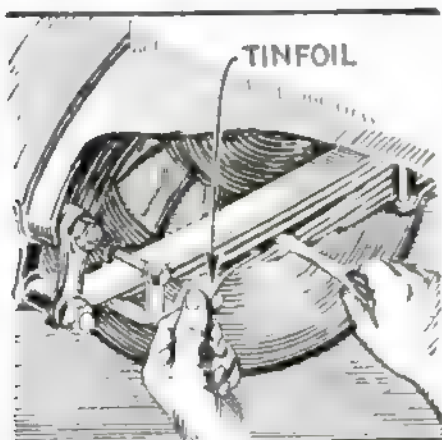
Cables leading to spark plugs sometimes loosen in the sockets of the distributor head so that good electrical contact is not made. To avoid this, add a few drops of mercury to each socket.

Mercury, being a good conductor of electricity, assures perfect contact in the sockets.—G. R. Hampton, McCamey, Tex.

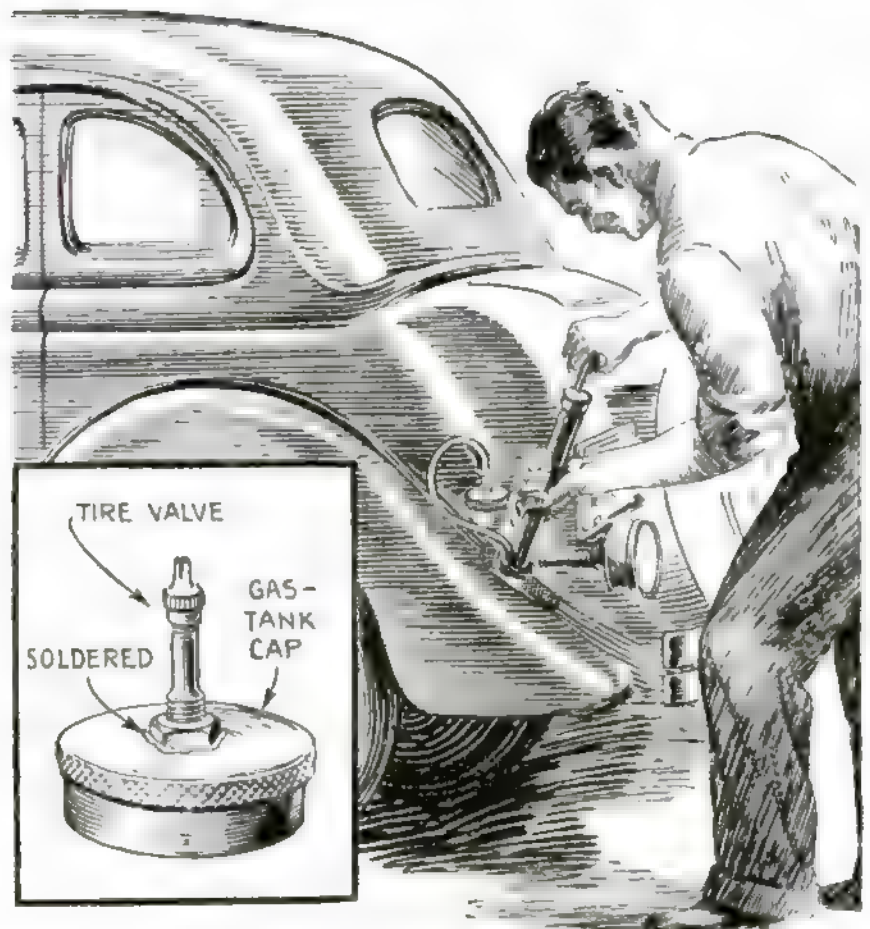


Tinfoil Helps Eliminate Squeaks in Car Springs

Squeaks originating between leaves of elliptic or transverse springs can be eliminated by inserting a strip of heavy tinfoil about 4 in. long between the leaves near the ends. Also, the tinfoil will make frequent spraying of the springs unnecessary.



a strip of heavy tinfoil about 4 in. long between the leaves near the ends. Also, the tinfoil will make frequent spraying of the springs unnecessary.



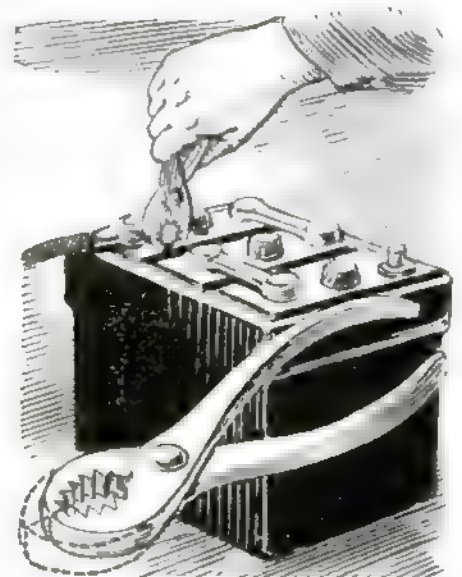
Tire Valve Soldered to Gas-Tank Cap for Use in Clearing Clogged Fuel Line

Blowing Out the Gas Line with Your Tire Pump

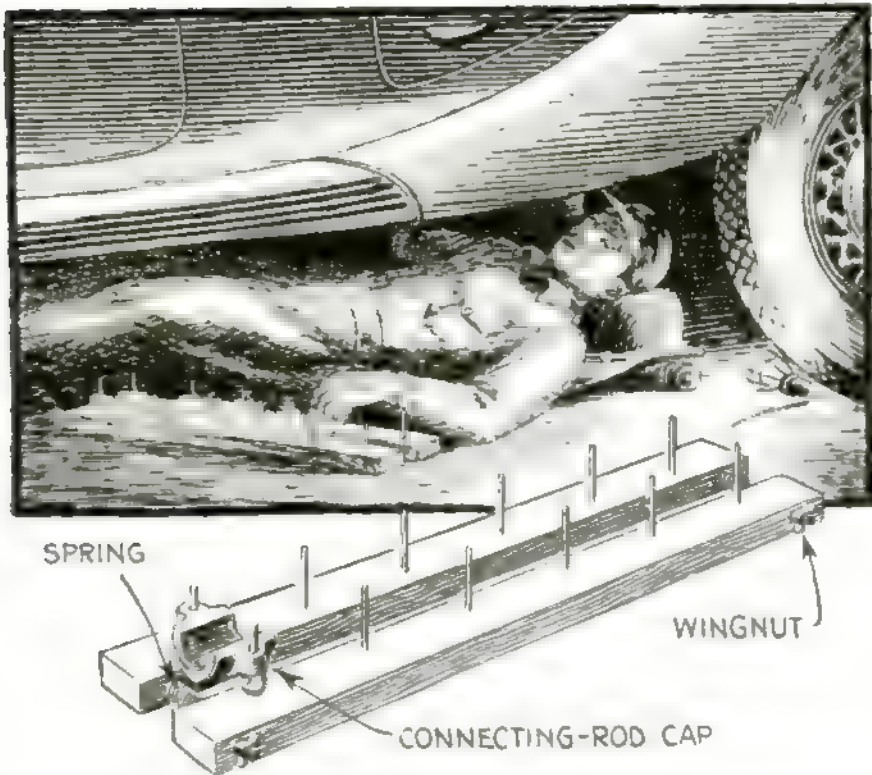
An extra gas-tank cap fitted with a tire valve as shown, and carried in your car, may save you a towing charge, should the gas line become clogged on the road. If this happens, just substitute the altered cap for the regular one, disconnect the line at the fuel pump or vacuum tank, and then use your tire pump to build up a pressure in the gas tank. This will usually force out the foreign matter in the line. Care should be taken not to build up too great a pressure inside of the tank as you may damage it.

Pair of Pliers Altered for Battery Work

When a pair of pliers is used to loosen or tighten nuts at a battery terminal, there is a possibility of the nose of the pliers damaging the top of the battery. To eliminate this difficulty, round off the nose of the pliers, as shown, on a grinding wheel. Grind off enough metal to allow the pliers to clear the top of the battery as the nut is turned.



Rack to Keep Bearing Caps in Order



Rack to Hold Nuts, Shims and Bearing Caps Keeps Parts in Order When Overhauling a Motor

When overhauling a motor, this rack will be found handy to keep bearing caps, nuts and shims in order, thus preventing any possibility of getting them on the

wrong bearing. The rack is made from two pieces of 1 by 2-in. wood. These are held parallel to each other by bolts as shown, compression springs being slipped over the bolts between the pieces so that the rack can be adjusted in width. Short pieces of $\frac{1}{4}$ -in. iron rod projecting vertically from the rack hold the caps.

Two Time-Saving Kinks That Help Chevrolet Mechanics

To tighten a loose flywheel on a Chevrolet without removing the rear end, transmission and clutch, cut a 1-in. hole near the flange to which the clutch is bolted. By using a $\frac{5}{16}$ -in. socket wrench, the job can be done in about one hour. When replacing a connecting rod in a Chevrolet motor, it is not necessary to remove the cylinder head and take out the piston if the piston pin is slightly worn. Just drop the oil pan, remove the connecting-rod bearing from the crankshaft, and lower the piston until the pin can be taken out. —J. L. Baker, Cooper, Texas.

The Next Issue

WASHED AIR IN YOUR HOME

An inexpensive, homemade conditioner that washes, humidifies and circulates heated air uniformly throughout your home. Conditioner attaches to a hot-air furnace with slight alterations, and it can be controlled automatically.

WHEN YOU LEAVE FOR THE WINTER

This story tells how to drain heating and plumbing systems, disconnect electrical circuit and protect windows and doors against weather and intruders.

BAGGING THEM ON THE WING

Sportsman explains why you miss apparently easy shots; getting the lead on a flying bird, how to make quartering shots, overhead shots, climbing shots, etc.

CHEAP HEAT FROM COAL

How to install and reduce speed of old vacuum-cleaner motor and fan to provide a forced draft for burning cheap fuel such as screenings and rice coal.

HOMEMADE JOINTER

This accurate, 4-in. jointer for home-workshop fans has adjustable tables, a handy, tilting fence, and can be built at a cost of less than five dollars.

YOU ARE MASTER OF TRAIL AND HIGHWAY

whether you ride in
**35 HARLEY-
DAVIDSON**

With the ultimate advantage of horsepower, you'll be in a commanding position, riding along a perfect mix of air and steel that's just what you need. Handling, strong engineering, and the most powerful engine in the world. Harley-Davidson is always one step ahead. You'll be there. Harley-Davidson is always one step ahead. You'll be there. Harley-Davidson is always one step ahead. You'll be there.

Harley-Davidson is always one step ahead. You'll be there. Harley-Davidson is always one step ahead. You'll be there. Harley-Davidson is always one step ahead. You'll be there.

FOR MORE INFORMATION

CONTACT US AT
HARLEY-DAVIDSON
P.O. BOX 1000, MILWAUKEE, WI 53201

OR
CALL 1-800-438-7489

HARLEY-DAVIDSON

E 732

Tattletale Trade-Marks of Crime

(Continued from page 507)

tives to predict in advance where a criminal will operate. A forger left a long trail of bad checks in southern California. Deported at the end of a prison term, he was seen later in Louisiana. Deputy sheriffs at Los Angeles, warned by a secret tip, were on the alert. They were sure he would come back to his old territory. Down from the shelves came records, and detectives picked out his M. O. He always traveled by bus. When arriving in town, he always rented an apartment. He always laid in a supply of wine.

Noting that he had operated in suburban cities, detectives picked out Burbank as the most likely place for him to operate. Then they warned business men to be on the lookout. A few hours later, a real-estate agent was visited by a man answering the description. He wanted to rent an apartment. The agent found him a place, saw him write a check and receive \$2.50 in change, then slipped to a telephone and called the police. The officers got their man—only sixty hours after their first tip!

Every criminal has his pet method, either from force of habit, or because he is familiar with that method. No matter how he tries to vary his routine, his telltale habits of thought and action constantly betray him. A series of robberies began to harass Berkeley and Oakland, Calif. Always it was a railway station that was struck. The police analyzed the M. O. of the crimes and found four clues that pointed to the same man: his vulgar language, the way he approached the place, the hour of the day, always the same, and a threat made on leaving. The rest was easy. At the hour when this man operated, every railway station within a fifty-mile radius was protected. As the bandit entered the scene of his next hold-up, he was killed as he attempted to flee.

Again, a series of burglaries of stores over a period of years put the police on the trail of a mysterious "hole-in-the-wall" burglar. Always he entered by digging out the bricks until he made an opening large enough to crawl through. Finally, it was suggested that detectives "clock" locations, dates, and hours of the crimes. This chart revealed several astonishing things. First, the crimes centered about a

single neighborhood, indicating that a single local person probably was responsible. Second, that during certain months of the year, the crimes ceased. It was decided the criminal periodically left the city for some unknown reason. Detectives thought of the fleet of boats which goes to Alaska each fishing season. From the principal packing company they obtained a list of residents among the crew. Narrowing it down to a dozen or so who lived near the circle of crime, they found some who had police records, but none that could be connected with any of the burglaries.

Then they sent the material to Washington for comparison with department of justice files. Back came word that an ex-convict had a record whose fingerprints tallied with those left at the scene of a burglary. The police followed him. Late one night, detectives watched him go out and return a few minutes later with a load of stolen goods. He was killed by police bullets as he attempted to flee with the loot.

The chattering black machines used in M. O. analysis may be put to new uses as their possibilities are further explored. For example, witnesses who look at police "rogues' galleries" to identify a criminal, often become so confused that soon they cannot tell one picture from another. But by a system of "portrait parle," invented by Alphonse Bertillon, every feature of a human being may be classified into types. Eyes, face, forehead, nose, lobes, eyebrows, wrinkles, hair, posture and general appearance, may be cataloged. If by questions, the witness could identify these types, a composite portrait could be built up, and only those photos answering this description, be picked out by the mechanical brain.

Linking the major police departments of the country by its common language, the scientific method of fact-recording is forming a nation-wide net from which a criminal cannot hope long to escape.

¶Names and addresses of manufacturers and dealers in articles described in this magazine will be furnished by our Bureau of Information upon request accompanied by stamped, self-addressed envelope.

E462

Machine-Made Heroes of the Gridiron

(Continued from page 522)

waist so the player has the sensation of tackling a live opponent. Others are encircled with heavily padded rings, not unlike automobile tires, to protect the player. The rings are fitted with strap adjustments so they may be raised or lowered.

One of the latest developments in football apparatus is a device which virtually combines all field equipment into one compact unit. With this machine, a player can be instructed, drilled and developed in all types of charging, blocking and tackling, under conditions closely approximating those encountered in a regular game. The padded dummies of these steel machines are shaped like a player in a defensive line stance, enabling the tackler to get the feel of the block. Regardless of whether the player hits the dummies high, low or in the middle, virtually the same spring reaction is offered. The machine has a sliding base made of twelve-gauge steel plate and is so balanced that it offers equal resistance no matter which way it is shoved.

Faulty charging, blocking or tackling is instantly detected when this machine is used. If the player lacks the all-important "follow-through" upon contact in the execution of a charge, block or tackle he will be repulsed exactly as if he encountered the superior force of an opponent, due to the recoiling force of dummy and sliding base. Or, if a man's feet are not as wide apart as they should be, he will lose contact with the apparatus just as he would lose contact with his opponent. This apparatus also offers the elements present in actual running shoulder blocks without injury to the player. The machine is set in the position of a defensive end at the time the running guard would contact him. The guard lines up in normal stance, pulls out of the line, focuses his eyes on the target and drives in with a running shoulder block, following through just as he would in a game. Thus, a player can drive full force and meet greater than live opposition without possibility of injury to himself or to a teammate acting as "cannon fodder."

The large frame charging sleds in most football camps aid in the development of a line's shoulder power and teach the value

of low charging and quick starting. Against a sled with seven padded posts the seven players take their respective places about the same distance as they would from their opponents on the line of scrimmage. When the signal is given they throw one shoulder against the post and the machine lunges backward. After two or three charges the players are given a short rest, then sent against the machine for a series of charges with the opposite shoulder.

Forward passers improve arms as well as their aim by tossing footballs through old tires suspended from a framework, and backs learn the art of side-stepping and getting their knees high in the air by hopping in and out of bottomless grocery boxes staggered in a line.

The guesswork connected with a line-man's job is eliminated by an indicator which also prevents the loss of a game due to touchdowns not being allowed when the ball has been carried across the goal line and subsequently pushed back into the field of play. It consists of two poles connected by a ten-yard chain. On each of these poles is mounted a sighting tube which contains reflectors and vertical cross hairs. By means of these reflectors it is possible to see the images of two flags, one in each corner of the field at the intersection of the end line and the side line. When the images of these two flags appear on the reflectors of the sighting tube directly opposite each other and identical, then the instrument is in adjustment, that is, the pole is vertical and the line of sight is at right angles to the side line—conditions necessary for taking a sight on the ball. If the forward point of the ball comes up to the vertical hair in the sighting tube the ball has been advanced ten yards, and a first down results.

Placed in a prominent position at one end of the playing field, the time-clock meeting with favor on several fields is operated by electricity with the control button in the hands of the game's official timekeeper. Its hands move clockwise and show the number of minutes and seconds remaining in each quarter. When a "time-out" occurs, it can be stopped, then started when play is resumed, thus keeping an accurate check on the game.

They changed a COURTNEY PLANT into a Drawing Room

WELL-KNOWN THIS
"COURTNEY PLANT"
WAS A
BANK BUILDING

The new plant is shown
in the picture.

It is the only one of its kind in the world. It is the only one of its kind in the world. It is the only one of its kind in the world.

It is the only one of its kind in the world. It is the only one of its kind in the world. It is the only one of its kind in the world.

It is the only one of its kind in the world. It is the only one of its kind in the world. It is the only one of its kind in the world.

It is the only one of its kind in the world. It is the only one of its kind in the world. It is the only one of its kind in the world.

It is the only one of its kind in the world. It is the only one of its kind in the world. It is the only one of its kind in the world.



THE COURTNEY PLANT, AS IT WAS, BEFORE IT WAS CHANGED INTO A DRAWING ROOM.



THE COURTNEY PLANT, AS IT IS, AFTER IT WAS CHANGED INTO A DRAWING ROOM.

It is the only one of its kind in the world. It is the only one of its kind in the world. It is the only one of its kind in the world.

It is the only one of its kind in the world. It is the only one of its kind in the world. It is the only one of its kind in the world.

It is the only one of its kind in the world. It is the only one of its kind in the world. It is the only one of its kind in the world.

It is the only one of its kind in the world. It is the only one of its kind in the world. It is the only one of its kind in the world.



THE COURTNEY PLANT, AS IT IS, AFTER IT WAS CHANGED INTO A DRAWING ROOM.

The new 1938 GENERAL ELECTRIC RADIO

FROM BOSTON TO BIRMINGHAM FROM CHICAGO TO NEW YORK

Heroes of the Flying Cross

(Continued from page 570)

emergency 'chute, which checked my drop and I alighted in a field."

A gas bag that went wrong brought the Distinguished Flying Cross to three noted balloonists of the air corps. In July of last year Maj. William E. Kepner, Capt. Albert W. Stevens and Capt. Orvil A. Anderson attempted a flight into the stratosphere. Their metal gondola, filled with scientific instruments, was attached to a huge gas bag. During the flight, the balloon became disabled. Great rips ran down the side and at 10,000 feet the occupants were forced to "abandon ship." The portholes of the gondola were opened and Capt. Anderson was hurtled out of the great ball by a jerk. Kepner and Stevens still clung to it, hoping to release the huge parachute and ease it toward the ground with the instruments. For 5,000 feet they clung to this ball, fighting the weird aerial battle. At last they lost and were forced to jump to save their lives.

Does lightning ever strike a moving plane or 'chute in the sky? A balloon occupied by Lieut. Uzal G. Ent and Lieut. Paul Evart, pilot, was taking part in a race at Bettis Field, Pittsburgh. The balloon was at about 2,000 feet when a thunder shower came up. They fastened on their parachutes and descended below the storm level. After ascending again Lieut. Ent reported a loud explosion.

"My left leg and right arm were paralyzed temporarily by the shock," says Lieut. Ent. "I got to my feet but found the balloon was on fire at the top. Efforts to revive Evart were ineffective but I thought he was alive. My first thought was to throw him over the side and trip the parachute, but I considered this unwise owing to the type of the 'chute. I decided to jump, then changed my mind. The balloon was falling about 200 feet per minute, but accelerating. It was not possible to valve, due to the danger of an explosion. The maximum rate of fall was about 700 feet per minute. To check this, avoid landing near some village, and to try to land in some small creek, all available ballast was thrown. The balance of the gas burned at about fifteen feet. The basket landed on the bank of a stream with little jar. The burning bag fell away from

the basket. With the aid of bystanders Lieut. Evart's body was removed. Artificial respiration was tried but he was pronounced dead. Electrical shock was given as the cause of his death. In my opinion lightning did not strike the balloon. What I think happened was this. A heavy charge of static was responsible for his death and the subsequent fire, and this charge may have generated around the valve."

Piloting an amphibian across the Canal Zone, Lieut. Cornelius W. Cousland saw his co-pilot mortally wounded by a part of one of the ship's motors. The body of the dying man fell across Cousland's lap. Below lay Gatun Lake, studded with tree stumps. Behind was a cabin full of passengers. In front was a disabled engine. He rose to the situation, however. He fought the controls until his spinning ship was righted and then, by skilled maneuvering, brought it down on the lake beside the jungle among the rotting stumps.

Sergt. Neff of the air corps received the Cross for hand-cranking a motor of the dirigible TC-71 when all other means failed after the ship had been broken loose from its mooring by a storm. Neff discarded his parachute and, climbing out on the rigging, worked in the darkness and the lashing storm until he turned the motor over. His courage saved the ship and its crew from destruction.

The Flying Cross is given also for outstanding flights as well as heroic action in the air. It has been won likewise by heroes on the ground who, at the risk of their lives, have rushed up to crashed and burning planes and rescued the occupants.

8852.

STAR MUCH HOTTER THAN SUN IS MEASURED BY SCIENCE

With a surface temperature many times greater than that of the sun, a distant star has been found to have a heat of 180,000 degrees Fahrenheit. The sun's surface is about 10,000 degrees. This particular star is a sun surrounded by a nebula, which in the telescope looks like a halo. This nebula, according to Dr. I. S. Bowen of California Institute of Technology, enabled scientists to measure the temperature with the aid of the latest instruments.

Paradise, Calif.

Temperature astronomer reading made by Dutch



Split-Second Photography

(Continued from page 555)

ufacture until the lags in the bulb action and shutter movement are timed so the shutter opens and shuts when the bulb is producing the most light.

The same thing is accomplished by the mechanical speed-flash gun in a different way. The shutter cable-release is removed and a spring-operated synchronizer, wound like a watch, is attached in its place. The cable is then screwed into a socket in the synchronizer. The attachment is a combination of electric switch and spring plunger. It is adjusted so that, after being wound up and released by pressure on the cable button, the switch first closes the photoflash lamp circuit, and then, at the proper instant, the plunger releases the shutter.

A hundred or more lamps can be arranged throughout a large auditorium, and flashed simultaneously, with the assurance that the camera will snap the picture while they are burning most brilliantly. One multiple synchronizing outfit fires 192 bulbs at once, requiring the flow for an instant of 576 amperes of current. This would wreck the average wiring system if the bulbs were fired directly from the 110-volt line. But, by feeding the current into the multiframe synchronizer, it is transformed into a high-ampere, low-voltage impulse that fires the lamps without danger of overheating the power wires.

Professional type photoflash synchronizers cost from \$12.50 to \$22.50. It is reported an amateur type synchronizer is to be marketed soon for about \$5.00. The ingenious amateur can construct his own synchronizer or semi-synchronizer. A simple one is illustrated. It is a hinged arrangement attached to the shutter release cable. When the leaves of the hinge are squeezed together, the cable button is pressed, opening the shutter, which has been set on bulb. Then, as the leaves move closer together, two electrical contacts close, firing the lamp.

Make the halves of the hinge from strips of aluminum or brass measuring about one-eighth by one-half by four and one-fourth inches. Rivet a small brass hinge about one-half inch long between the strips when they are placed end to end, with a gap of about three-sixteenths inch

between them. This forms the hinged joint. At the opposite end of one strip, drill a hole large enough to receive the metal collar attached to the outer end of the shutter cable. This collar is flared to provide a finger hold. Near the edge of the flared part when the cable is passed through the hole, drill another hole in the strip and thread it to receive a small bolt, whose head clamps the flared collar firmly.

Midway between the ends of the same strip drill a hole and tap it to receive a small bolt equipped with a lock nut. At a point directly opposite this hole, in the other strip, drill another hole, making it large enough to receive a bolt which has been passed through an insulating tube of hard rubber, paper or other non-conducting material. Use insulating washers beneath the bolt head and nut. This bolt must not come in contact with the rest of the synchronizer. File its head flat, to provide a good contact surface for the end of the bolt in the other strip.

Adjust the bolt with the lock nut until it touches the flat head of the insulated bolt immediately after the shutter has opened as a result of the cable button being pressed. Connect the synchronizer into the circuit in place of the usual switch on any standard photoflash gun, running one wire to the insulated bolt and the other to any convenient part of the strip containing the other bolt.

Set the shutter to the "B" or bulb mark—"D" on some foreign cameras. When the hinge is squeezed together, the cable-release plunger moves inward and opens the shutter. Then the two bolts come together, closing the electrical circuit and firing the lamp. Release the hinge immediately, to permit the shutter to close. It may be necessary to insert a spring that will force the hinge open, if the spring in the release cable is not strong enough.

Very short exposures can be given, the duration depending on the speed of the bulb, but the shutter will remain open no longer than necessary for making this exposure. The size can be altered to fit any shutter-release cable or trigger. Construction can be simplified by using maple or other hardwood for the two hinged

(Continued to page 125A)



SPLIT-SECOND PHOTOGRAPHY

(Continued from page 122A)

arms, and connecting the flexible wires directly to the two screws. Screw threads of sufficient strength can be cut in maple, for the adjustable contact. By careful adjustment, shutter speeds of one-half or one-fifth second can be employed. Be sure to fasten the hinge firmly and have the hinge pin working tightly, or the lost motion will make such speeds unreliable. Use it only with low-voltage battery circuits; never when the bulbs are fired by house-lighting current.

Camera shutters also may be synchronized with flashlight guns using magnesium powder. Usually the force of the powder explosion causes an arm to move and complete an electrical circuit which energizes a magnetic tripping device on the shutter. Such a magnetic attachment can be made from a doorbell or buzzer.

An English photographer uses synchronized photoflood lamps to photograph fish and animals. These lamps are simply low-voltage bulbs burned at a voltage that raises their tungsten filaments nearly to the melting point. Intense light caused the animals to move. He devised a system of relays so that, by closing a switch, the photoflood lamps would be illuminated and, as they reached full brilliancy, the shutter would operate. By using two doorbells as relays, he secured the necessary delay in shutter action.

Practically any amateur camera having a between-the-lens shutter is adaptable to photoflash equipment. Lenses of extreme speed are not necessary, because, with fast film, speed shots can be made at lens openings of f:8 (U. S. 4) or thereabouts. Shutter speeds of one-two-hundredth second will stop ordinary child action. Photographing sports activities at night is another fascinating field. The subjects of candid camera shots do not know they are being photographed until the bulb flashes; and with the blue lamps, even this warning is eliminated.

Split-second flash-bulb tactics sometimes produce unusual lighting effects in bright sunlight. The illumination from photoflash bulbs in reflectors is more intense than sunlight on subjects a few feet away. With photoflash bulbs, the cost per exposure may be a bit higher, but the results possible will offset the cost.

HAVING PISTON TROUBLE ?

Fitted into the cylinder-bore is a relatively simple looking assembly of piston, piston rings, piston pins, and the connecting-rod which is joined to the crank-shaft.

The primary service of the piston is to convert the pressure of the exploding gasoline on its upper, or closed face, into the force necessary for turning the crank-shaft. The downward escape of the gases is checked by the flexible rings and by the film of lubricating oil between piston and cylinder.

This oil film also must resist the terrific heat playing upon the piston as well as cushion the shock of the sidewise thrust of the downswinging piston and connecting-rod. Any weakness in the oil film inevitably leads to prematurely worn rings, scored cylinders, loose pistons. This condition in turn leads to rapid formation of carbon.

If you wish to avoid piston trouble and have assurance of perfect functioning of the motor, the selection of the right grade and quality of motor oil is essential.

Because Quaker State Motor Oil, for over twenty years, has demonstrated an unparalleled lubricating efficiency, it has become the "first choice of experience." That's why so many economically-minded motorists are saying today: "I can't afford repair bills, so I use Quaker State." Quaker State Oil Refining Company, Oil City, Pa.

"First choice of Experience"

**QUAKER STATE
MOTOR OILS**

35¢ per quart

WOOD



**SAFETY
SOUND
AND STABLE**

WOOD TREATMENT SYSTEM
 The Wood Treatment System is a revolutionary new way to protect your wood from decay and insect damage.

ADVANTAGES

The Wood Treatment System is a revolutionary new way to protect your wood from decay and insect damage. It is a non-toxic, water-based solution that penetrates deep into the wood, killing any insects or fungi that may be present. It also helps to prevent future infestations by creating a protective barrier on the surface of the wood.



PLASTIC WOOD
 Plastic wood is a revolutionary new material that combines the strength and durability of plastic with the appearance of wood.

Plastic wood is a revolutionary new material that combines the strength and durability of plastic with the appearance of wood. It is a lightweight, easy-to-install material that can be used for a variety of applications, including fencing, decking, and landscaping.



**SAFETY SOUND
AND STABLE**

The Wood Treatment System is a revolutionary new way to protect your wood from decay and insect damage. It is a non-toxic, water-based solution that penetrates deep into the wood, killing any insects or fungi that may be present. It also helps to prevent future infestations by creating a protective barrier on the surface of the wood.

Plastic wood is a revolutionary new material that combines the strength and durability of plastic with the appearance of wood. It is a lightweight, easy-to-install material that can be used for a variety of applications, including fencing, decking, and landscaping.

The Wood Treatment System is a revolutionary new way to protect your wood from decay and insect damage. It is a non-toxic, water-based solution that penetrates deep into the wood, killing any insects or fungi that may be present. It also helps to prevent future infestations by creating a protective barrier on the surface of the wood.

Plastic wood is a revolutionary new material that combines the strength and durability of plastic with the appearance of wood. It is a lightweight, easy-to-install material that can be used for a variety of applications, including fencing, decking, and landscaping.





Here Party Face!



What more
is a party
without
the right
entertainment?



What, you thought
you were done with
party lighting?

Now you can have
the best of both worlds
with the new
chandelier collection.
The new chandelier
collection is the perfect
solution for your
party lighting needs.



*where the stars
shine*





4.2.2 THE CONCEPT OF SPREAD: ITS THREE PARTS

According to the above, there are three parts to the concept of spread. The first part is the *spread* itself, which is the difference between the *spread* and the *spread*. The second part is the *spread*, which is the difference between the *spread* and the *spread*. The third part is the *spread*, which is the difference between the *spread* and the *spread*.

According to the above, there are three parts to the concept of spread. The first part is the *spread* itself, which is the difference between the *spread* and the *spread*. The second part is the *spread*, which is the difference between the *spread* and the *spread*. The third part is the *spread*, which is the difference between the *spread* and the *spread*.

According to the above, there are three parts to the concept of spread. The first part is the *spread* itself, which is the difference between the *spread* and the *spread*. The second part is the *spread*, which is the difference between the *spread* and the *spread*. The third part is the *spread*, which is the difference between the *spread* and the *spread*.

Journal of Post Keynesian Economics Review
Volume 12, No. 1, 2009, pp. 199-207

4.2.3 THE CONCEPT OF SPREAD: ITS THREE PARTS

4.2.3.1 THE CONCEPT OF SPREAD: ITS THREE PARTS

According to the above, there are three parts to the concept of spread. The first part is the *spread* itself, which is the difference between the *spread* and the *spread*. The second part is the *spread*, which is the difference between the *spread* and the *spread*. The third part is the *spread*, which is the difference between the *spread* and the *spread*.

According to the above, there are three parts to the concept of spread. The first part is the *spread* itself, which is the difference between the *spread* and the *spread*. The second part is the *spread*, which is the difference between the *spread* and the *spread*. The third part is the *spread*, which is the difference between the *spread* and the *spread*.

According to the above, there are three parts to the concept of spread. The first part is the *spread* itself, which is the difference between the *spread* and the *spread*. The second part is the *spread*, which is the difference between the *spread* and the *spread*. The third part is the *spread*, which is the difference between the *spread* and the *spread*.

According to the above, there are three parts to the concept of spread. The first part is the *spread* itself, which is the difference between the *spread* and the *spread*. The second part is the *spread*, which is the difference between the *spread* and the *spread*. The third part is the *spread*, which is the difference between the *spread* and the *spread*.

According to the above, there are three parts to the concept of spread. The first part is the *spread* itself, which is the difference between the *spread* and the *spread*. The second part is the *spread*, which is the difference between the *spread* and the *spread*. The third part is the *spread*, which is the difference between the *spread* and the *spread*.

Chen *et al.*

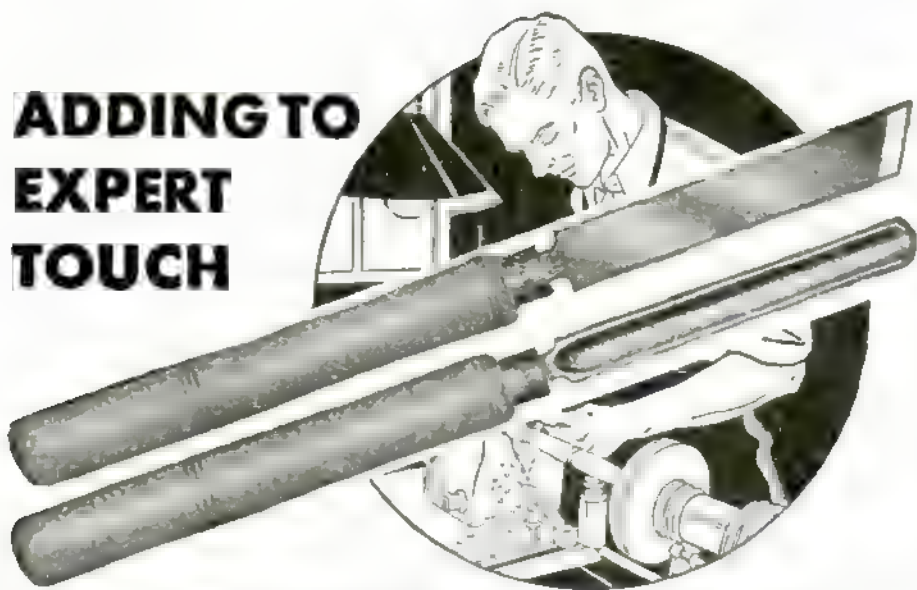


ONE DROP

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----



ADDING TO EXPERT TOUCH



● Disston makes Keystone Home Workshop Chisels and Gouges with the steel, temper, correct bevel and balance to add expertness to your touch . . . accuracy and speed to your work. Forged tangs, lacquered hardwood handles, brass ferrules. Prices each, 65c and 90c. See the full set, and you will buy it: eight Keystone Wood Turning Chisels and Gouges, price \$5.60 complete. Slightly higher in Canada.

Ask your dealer for Disston-made
KEYSTONE
Home Workshop
SAWS and TOOLS

WRITE us for "Disston Saw, Tool and File Manual", FREE, with valuable "hows" and "whys" on motorized home workshops. Henry Disston & Sons, Inc., 1011 Tacony, Philadelphia, U. S. A., Canadian Factory: Toronto

OTTAWA LOG SAW

only \$39

GREATEST OFFER EVER MADE

Make Money! Wood is valuable. Saw 15 to 20 cords a day. Does more than 10 men. Ottawa easily operated by man or boy. Falls trees—saws limbs. Use 4-hp. engine for other work. **30 DAYS' TRIAL.** Write today for FREE book.

OTTAWA MFG. CO., 1741-W Wood St., Ottawa, Kansas

MAKE YOUR OWN ELECTRIC DRILL

\$17.85 MOTOR MADE from Model T Ford Generator. We furnish all other parts already assembled. Hones Cylinders, etc., like \$55 to \$65 DRILLS. Motor: fan cooled, continuous duty, extra power, 110 volts AC or DC or 32 volts. Many in use. Guaranteed to work. Get your Drill Kit now. Costs going up.

RAND CO., 2004 PM Grand Ave., Kansas City, Mo.

FOR LOOSE RUNGS, ARMS, LEGS

No Glue **HOLDEMS** **No Nails**

Reg. U. S. Pat. Off.

You can easily fasten a loose rung for all time with HOLDEMS—small metal pronged inserts that firmly grip both rung and socket. Merely remove rung, insert HOLDEM, and drive rung back. No whittling. Also for mop, mallet or other handles, and any dowels. Patented. 25 cents a box of 30, assorted sizes.

AT HARDWARE STORES—or 25cts. by mail to A & F Products, Mfrs., 3 West 37th St., N. Y.

Cheaper HEAT Without COAL



EARN \$60 A WEEK!

Write for FREE Burner offer and protected territory

Men and women wanted to demonstrate and take orders for this wonderful invention. This year's sales are tremendous. Make big money. Experience unnecessary.

New Invention Fits Any Stove or Furnace

Remarkable invention burns 96% air, 4% of a cheap variety of oil obtainable everywhere. Does away with coal, wood, ashes, dirt and drudgery. Quick, clean, silent heat, 3 times hotter than coal, and cheaper. Temperature control gives any amount of heat desired—no more getting up on bitter cold, wintry mornings. Many automatic features. No gas or electricity needed. Safe as ordinary kitchen range. Easy to install—no damage to stove—simply sits in firebox of any stove range, or furnace. Costs just a few cents a day to operate.

TRY 30 DAYS AT OUR RISK

Low introductory price and 30 day trial. Write for free catalog. AGENTS and spare time workers: Oil heat saves money this year; people buy to save! Write immediately for free burner offer that starts you in business for yourself. Act NOW!

BRIGHAM OIL BURNER CO.
2927-K Clark Ave. St. Louis, Mo.

NEW MEAD MOTOR SLED READY!

For Home Builders

Now you can easily build Mead's new, streamlined MOTOR SLED from drawings, parts or complete construction kit. Uses OUTBOARD or other engine. Low cost. Amazing speed. Seats 2. Also Ice-Boats, K-Y ks, sailboats. Rush 10¢ for illustrated literature. MEAD GLIDERS, 15 S. Market, Dept. 10-B8, CHICAGO.



NEW!! MIDGET POCKET RADIO



Fits in any pocket easily. Weighs only 4 ozs. as shown! NO tubes, batteries or electrical connections needed! Nothing to wear out or need replacement—only one moving part. Separates and receives stations with beautiful clear tone. Range up to 50 miles—much greater under good conditions—very little static! Can be used

by ANYONE ANYWHERE! Foolproof—NO Crystals to adjust! Absolutely complete with midget phone and directions to use on Bicycles, Autos, in office, hotels, camps, at home, etc. No messy hookup! THESE ARE FACTS! Send only \$1.00 and pay postman \$1.99 plus postage or send \$2.99 (Cash, Money Order or Check). Ideal gift. Guaranteed. Order NOW! (Foreign orders 65c extra.) At Better Dealers.

TINYTONE RADIO CO. Dept. P-10 KEARNEY, NEB.

BUILD YOUR OWN

Streamlined Trailer at little cost. Send dollar for plans, blueprint, details, pictures of the Standard and the Deluxe Model as shown. Mail a dollar to **D. VAN OOSTVELDT, 111 MARSTON, DETROIT, MICHIGAN.**



Sell PLAYING CARDS

Make Extra Money

New easy way to earn money taking orders from friends and others for new Initial Playing Cards. Also, many other smartly styled decks not shown in stores. Popular low prices. Start earning at once. Thousands of prospects near you. No experience needed. Men or women, write for sample outfit—FREE. General Card Co., 1201 W. Jackson Blvd., Dept. 131, Chicago, Ill.

DEAFNESS IS MISERY



Many people with defective hearing and Head Noises enjoy Conversation, Movies, Church and Radio, because they use Leonard Invisible Ear Drums which resemble Tiny Megaphones fitting in the Ear entirely out of sight. No wires, batteries or head piece. They are inexpensive. Write for booklet and sworn statement of the inventor who was himself deaf.



A. O. LEONARD, Inc., Suite 699, 70 5th Ave., New York

TELEVISION ON TRIAL

(Continued from page 526)

to receive either on 240 or 405 lines. The transmission is on the wave band between six and seven meters.

In order that the public and unbiased engineers may decide the merits of 240 and 405-line transmission, the committee has decided to have alternate broadcasts of the two definitions. One day, transmission will be on 240 lines, and the next day on 405 lines. The transmitters are under the same roof at Alexandra Palace, and their building was financed by the radio license fees paid by radio fans.

It costs about \$2.50 to license a home radio set in the British Isles. This fee may be increased as television develops. For the time being, a television receiver may be installed in the home without additional cost. The high-definition service in England makes it possible for fans to receive pictures that are as clear and contrasting as the best printed pictures. The picture size is now about twelve inches square, but it is easily possible to enlarge this with a magnifying glass.

The quality of reception on one of the old television receivers is equivalent to the moving-picture definition in the year 1910. This transmission is only thirty lines, of course, and by comparison with 240 lines or 405 lines it is quite crude. But even about the crude television transmission there are some remarkable features. First of all, the television camera, like the movie camera, gives an excellent idea of perspective. But it goes even beyond the movie camera when it comes to giving an object relief, or a third dimension. A face does not appear flat, but one actually sees its spherical contour. The television performers make up quite elaborately. They paint their faces a ghastly white, using black lines for wrinkles. But with 240 or 405-line transmission very little make-up is necessary, and their faces appear quite natural.

And the sound part of television broadcasting is as successful as sound with moving pictures has been.

Names and addresses of manufacturers and dealers in articles described in this magazine will be furnished by our Bureau of Information upon request accompanied by stamped, self-addressed envelope.

RADIO TELEVISION EXPERTS IN DEMAND

A 3 NATION RACE

Great Britain, Italy and the United States are all entered in the great race for supremacy in Television. Television is no longer a dream of the future. It is no longer a matter of years of development before it is practical. Television is here, with an ever increasing demand for Television-trained radio experts. Don't put off your opportunity to enter the fascinating, high-salaried field of Television. Get into Television now, and reach the top ahead of the others.

TRAIN AT FIRST NATIONAL TELEVISION, INC.

where the finest engineers give you a complete training in in Radio and Television on the finest radio and Television equipment. First National Television, Inc. owns and operates Government licensed Television Experimental Station W9XAL, and Commercial Broadcasting Station W9XBY.

NO PREVIOUS EXPERIENCE NEEDED

First National Television, Inc. trains you step by step from the simplest principles of electricity and radio through the most advanced principles of high-definition Television. Students qualify for government licenses while learning, and licensed students put in hours of actual experience handling the most up-to-the-minute radio and television broadcasting equipment.

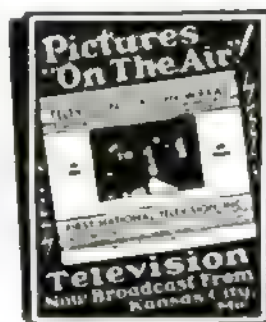
FIRST NATIONAL GRADUATES LAND THE JOBS!

"I have found out that anyone taking your course who studies hard can get a radio education second to none, and best of all—you get actual experience in operating W9XBY and W9XAL, which I have heard of no other school giving. That is why I feel free to recommend your course to any young man who is interested in guaranteeing his future."

—Wayne J. Hatchett
Engineer, WNAX

"Take it away,"—
Student engineers flash
actual broadcast on air.

"I am in complete charge of television here and have designed and supervised construction of all television apparatus."—M. E. Eisenberg, in charge of Television Development at WDGY (also television station W9XAT), Minneapolis, Minnesota.



S. Q. Noel, President
FIRST NATIONAL TELEVISION, INC.
(TRAINING DIVISION)
Power and Light Bldg., Kansas City, Mo. Dept. AA100

Dear Mr. Noel:
Send me your FREE book about Radio and Television without further obligation to me.

NAME _____ AGE _____

ADDRESS _____



Don't let a clogged radiator steal power from your car. Rust and scale accumulate in the cooling system of your motor. They overheat the engine. They waste fuel and bring about expensive repairs.

It takes a few minutes and ten cents to clean out your radiator with Sani-Flush. Buy the new ten-cent can from any grocery, drug, or hardware store. Pour it in the radiator (follow directions on the can). Run the motor. Drain, flush and refill. Sani-Flush is non-caustic. Cannot harm the aluminum cylinder heads, or damage hose connections. It's thorough and perfectly safe. Be sure to clean out automobile radiators with Sani-Flush before using an anti-freeze. Sold in 25c and 10c sizes. The Hygienic Products Co., Canton, Ohio.

Sani-Flush KEEPS
RADIATORS CLEAN—NON-CAUSTIC

DE-FUMES, DEODORIZES
Sweetens Old Pipes
 **PIPE 25¢**
SWEETENER
MADE BY THE MAKERS OF
Drinkless
KAYWOODIE
PROVED THE BEST SMOKING PIPE IN THE WORLD
KAUFMANN BROS. & BONDY, INC., NEW YORK, N. Y.

STEAM STILL RULES THE RAILS

6-192 (Continued from page 513)

A brakeman in the beaver-tailed rear parlor car pulls a cord signaling with a high, piping whistle in the cab of the engine for a test of brakes. Bill gives the automatic a turn. All's right. Then he tries the secondary brake, which applies to the locomotive wheels alone. This brake is used only in yard operations or to hold a train stationary at the station.

"Clear at the cylinder cocks?" Bill calls across the cab to Ed. The fireman nods, with a sly wink. Bill pulls a lever, and steam shoots out in a horizontal jet from each cylinder, narrowly missing a yardman walking alongside. He shakes a fist at the fireman and grins. These cylinder cocks must be blown at the start because of condensation in the cold cylinders.

The steam locomotive always has had speed to spare. As early as 1897 the Atlantic City express of the Reading road was running from Camden to Atlantic City, fifty-five and one-half miles, at a scheduled speed from start to stop of about seventy miles per hour.

Today the challenge of Diesel and electric-power and lightweight trains has caused the steam locomotive to use some of its reserve speed and it is matching schedules with the best the Diesels can do. The "Hiawatha," the oil-burning and steam-powered "400" of the North Western, and the Burlington's Diesel-powered lightweight "Twin Zephyrs" all have the same station-to-station time between Chicago and St. Paul.

The Burlington's Diesel-driven "Zephyr" running between Kansas City and Lincoln makes the 251 miles at an average speed, start to stop, of 45.6 miles per hour, but the steam-powered "Yankee Clipper" of the New Haven road goes from New York to Boston, 229 miles, at an average of 50.9 miles per hour, start to stop. And the Baltimore and Ohio's steam-powered "Columbian" travels from New York to Washington, 223.6 miles, at an average of 55.9 miles per hour, station to station.

All of which leads the champions of steam to proclaim that there is no more likelihood of the railroads becoming Dieselized than there was a few years ago of becoming electrified overnight. The steam locomotive, claim its defenders, is too fast and powerful to lie down and play dead.

AGENTS!!

Big New Money-Maker

Women Make as
Much as Men

Make Big Advance Commissions—Quick!

AN amazing new process has been invented by which it is possible to take an ordinary object and turn it into an article of such rare beauty that everyone who sees it wants to buy and own one for themselves.

At the time this magazine goes to press only a small handful of men have ever seen or heard of anything like this breath-taking invention.

Absolutely new, yet it has so many different uses that there is not a home or an office where it is not eagerly bought.

This invention is so absolutely strange that there is not one word to describe it. To show you a photograph wouldn't give you

the slightest inkling of its use or its tremendous selling appeal.

Only by showing you a sample, only by holding it in your hands can you realize what a gold mine of profits it opens up to the first man or woman in any community to introduce this new invention to friends and neighbors.

No investment required. You buy nothing. You get your commissions in advance when sale is made.

If you have the slightest interest in knowing what may quickly be the outstanding money making sensation of the year, send your name and address to me at once. By return mail and Free of Charge, I will tell you about

this product and tell you where and how you can see a sample.

No obligation to buy or to be my agent. But by all means look this over. It is the strangest, biggest money-making proposition in years for the men and women who have their eyes open for a proposition that can be an overnight success.

Or mail the coupon below with name and address

Mr. A. Schuler, 1037 Evans Street, Dept. 1010, Cincinnati, Ohio

Without obligating me in any way and entirely free of charge, please send me full information about your mysterious new process. Also tell me where and how I can examine a sample.

Name.....

Address.....

City.....State.....

Address—A. SCHULER, 1037 Evans St., Dept. 1010, Cincinnati, Ohio

SPORS
1935
NO. 46 SUMMER EDITION
WHOLESALE CATALOG
SHOWING OVER
3000
FAST SELLING
SPECIALTIES
FROM ALL PARTS
OF THE WORLD
MORE SALES—
BIGGER PROFITS
SPECIALTY SALESMEN
WHOLESALE USERS, CROW
MANAGERS, JOBBERS,
SALES OPERATORS
SPORS COMPANY
WHOLESALE IMPORTER MANUFACTURERS
LE CENTER, MINN.

3000 ITEMS FREE WHOLESALE CATALOG

of 152 pages, for agents, salesmen, dealers, etc. Shows 3000 items at rock bottom wholesale prices. Deals, flavors, gifts, premiums, toiletries, hosiery, etc. are illustrated. Send for the Newest Summer Issue, TODAY.

SPORS CO.

8-35 Main St., Le Center, Minn.



For Economy BUY—For Income SELL

The Eifel-Geared Plierench Kit

NEW 7" and 8½" Sizes—

Each with 3 instantly changeable Jaws

A \$50 Service at the Cost of One Tool!

Mail this Ad Today with your address

Get FREE—7-Edge End-&-Angle

Screwdriver, 101 Picture Manual of Mechanics, with

☐ User Offer, or ☐ Distributor Territory and Free Kit Offer.

Be a Plierench Man. They're making \$35 to \$125 Weekly!

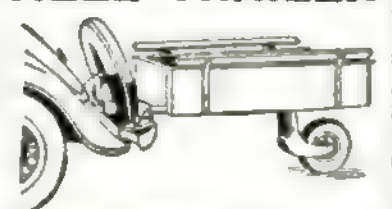


AMERICAN PIERENCH CORP'N

JMP-4809 N. Ashland Ave.
CHICAGO, ILL.

BUILD This ONE-WHEEL TRAILER

SAVE 75%. It took us over 7 years to perfect this new type trailer. We will show you how you can build it in a few hours. Fastens at 2 places to car—NO SIDE SWAY. Only ONE WHEEL (Castertype). Mail three dollars today for complete, easy plans.



A. C. B. TRAILER CO.,

LINCOLN PARK, MICH.

100 PAGE BOOK No. 8
It is full of beautiful things that you can easily make—hard to find material such as foreign woods—lovely crotch, butt, burl, fiddle back, etc. Veneers, panels and Solid Woods. Lists and illustrates 76 Blue Print Designs for Scroll Patterns, Inlay Table Tops, etc.
only 10¢
CRAFTSMAN WOOD SERVICE CO.
We Ship All Over the World
2728 MARY STREET CHICAGO

VEST POCKET ADDING MACHINE
Adds, Subtracts, Multiplies, Divides. Does work of costly machine. Not a toy. Million dollar capacity. Simple and accurate. Guaranteed 5 years.
FREE TRIAL
—SEND NO MONEY—
\$2.50
Total Cost
Just name and address. We will ship Calculator immediately. (On delivery pay postman \$2.50 (plus few cents postage). (If outside U. S. send cash.) 10¢ additional in Leatherette Case. If not satisfied after 10 days' trial you get your money back. **THOUSANDS OF SATISFIED USERS** Write for Agents' Proposition. **CALCULATOR MACHINE CO. (Mfrs.)**
P. O. Box 1118, Dept. 31, CHICAGO ILLINOIS.

ONLY \$4 DOWN buys a new Remington TYPEWRITER



Not a used or rebuilt machine. A brand new regulation Remington Portable. Simple to operate. Full set of keys with large and small letters. Carrying case included. Use it 10 days free. You get all this for only \$4 down.

Write today. Say: Tell me how I can get new portable typewriter on 10-day free trial offer for only \$4 down. Remington Rand, Inc. Dept. 152-10, 205 East 42nd St., New York, N. Y.



BUILD

these POPULAR MECHANICS RADIO circuits

Thousands are building the successful Radio Receiver, Transmitter, and Amplifier circuits described each month in "Popular Mechanics Magazine." It pays to build these circuits which carry the approval of the "Popular Mechanics" Radio Laboratory and which are selected on the basis of excellence, simplicity and low cost. When you build your "Popular Mechanics" set, use only approved parts, offered in kit form exclusively for you at lowest wholesale prices by ALLIED—your Radio Parts Headquarters. Write to us for FREE Parts Lists covering such popular circuits as the 1 Tube Portable Receiver (R209); the 2 Tube AC-DC set (R211); the 6 Tube 32-Volt Farm Radio (R208); the Metal Locator (R213) the All-Star Jr.; the Browning 35; and many others. We can supply all parts for building any "Popular Mechanics" radio circuit described in this or in any other issue. Before you buy, write for our parts lists.

FREE 1936 CATALOG

Our new 1936 Radio Catalog is ready. 114 pages packed with everything in radio at the lowest prices. Features newest all-metal tube radio receivers for world-wide reception—latest Short Wave and Amateur receiving and transmitting gear; dozens of new kits for building the latest All-Wave, Dual Wave, Short Wave, A. C. and battery radios, auto radios, etc. Offers an amazing array of the newest and finest Public Address Systems, Amplifiers, microphones, recording equipment, etc. Also thousands of exact duplicate radio replacement parts, radio tools and latest test equipment. Everything you need in radio is in this FREE Catalog at the lowest wholesale prices.



SEND FOR YOUR COPY

The new 1936 ALLIED Catalog is yours for the asking. Write for your copy now. If you are a Radio Amateur; if you build or experiment with radio, you need this catalog. It is the leading Radio Supply Guide. Send for your FREE copy now.

ALLIED RADIO CORPORATION

ALLIED RADIO CORPORATION

833 W. Jackson Blvd., Chicago, Ill., Dept. K1.

☐ Send me your FREE 1936 Radio Catalog.

☐ Send me "Popular Mechanics" Parts List No.

Name.....

Address.....

S.-W. SUPER HAS CRYSTAL FILTER

(Continued from page 581)

and forth through resonance, thereby becoming of great advantage in completely eliminating interference from near-by stations which are beating with the signal being tuned.

When the desired station has been tuned in accurately with the main tuning controls of the receiver, and interference prevents good reception, the filter condenser is rotated until a certain sharp point of adjustment is located where the interfering signal drops out.

HOW TO INSTALL A GOOD ANTENNA

(Continued from page 584)

the 500 to 1,500-kilocycle band the handles should be thrown down to the B-B position. This setting is also satisfactory for ordinary short-wave reception. If the short-wave signals do not come in with sufficient strength, the switches are set at the I-B position for frequencies between 1,500 and 6,000 kilocycles; the I-S position is employed for frequencies between 6,000 and 15,000 kilocycles.

This same system may be used as a double doublet by merely connecting the transmission line to the center of the antenna arrangement shown in Fig. 11. In this case the antenna coupler is not used. The receiver transformer should be operated with the switches in the position I-B and the receiver should not be grounded. This system is recommended when a short-wave receiver is to be used or when greater efficiency is desired in the short-wave bands than in the broadcast band. A chart, furnished with the kit, shows suggested lengths for the flat-top sections "A" and "B," with the wavelengths at which the highest efficiency will be obtained.

When erecting an antenna, select the type best suited for your particular location and the kind of service desired. Remember that it should be kept as high above the ground and as far from all other wires as possible. In all cases the antenna should run at right angles to telephone, electric-light or trolley wires. If there are any points not clear to the reader, or further data are desired on the various systems described, this information can be obtained from Popular Mechanics radio department, without charge.

NEW TYPE CHEAP OIL BURNER

Sweeping the Country!!

COOK and HEAT Without Coal or Wood

TWICE the HEAT at HALF the COST

No Dirt or Ashes

QUICK HEAT AT TURN OF VALVE



Revolutionize Your Heating and Cooking—Modernize Your Old Stove or Furnace With Amazing New-type Oil Burner Which Experts and 25,000 Users Say BEATS ANY EVER GOT- TEN OUT FOR LOW COST, PERFECT PERFORMANCE. Burns Cheap Oil a NEW WAY Without Pre-generating or Clogging Up, Cuts Fuel Bills in Half and Pays for Itself Quickly by What it Saves. READ BELOW HOW YOU CAN TEST THIS REMARKABLE SUPER FLAME "HEAT KING" OIL BURNER in Your Own Home or Business FREE OF RISK. Then Mail Coupon Below.

Why burn coal or wood with its dirt and drudgery of building and feeding fires, carrying ashes and uneven, slow-starting heat, when you can burn cheap oil a NEW WAY and get TWICE THE HEAT at HALF the COST—and have QUICK heat regulated to any degree desired by a simple turn of a valve.

Your present coal or wood cook stove, heating stove or furnace can be fitted easily and quickly with our Super Flame HEAT KING which has brought joy and economy to over twenty-five thousand and has been acclaimed by many users as the most perfect oil burner ever invented. Nothing like it ever has been on the market—the lowest priced efficient oil burner in the country. Positively guaranteed NOT TO CLOG, NOT TO CARBON or STOP UP. The only oil burner that has a record of over 11 years constant use without ever needing any cleaning or any attention. Simple—safe—economical—no electrical connections—no moving parts to wear out—all unnecessary parts eliminated—does better work at less cost. Burns 95% air and 5% cheap oil and the result is TWICE THE HEAT OF COAL by simply turning valve.

AGENTS—

Salesmen—Distributors

DROP EVERYTHING

For This Big Money Maker

BIG SEASON NOW ON for Super Flame "HEAT KING." Ride in on the tremendous SWEEP OF SALES AND PROFITS. Startling low price puts it within reach of everyone—no wonder sales are breaking all records. Shrewd salesmen and distributors are quick to see it sells fastest because lowest priced, cheapest to operate, most efficient.

If you want to DOUBLE and TREBLE your earnings and own your own business show and demonstrate the HEAT KING now. You can't beat it as a money maker. Get YOUR OWN OIL BURNER SAMPLE AT NO COST and CASH IN BIG in SALES and PROFITS. Act quick—be FIRST in your locality—MAIL COUPON below or 1c postcard today—NOW.

TRY AT OUR RISK —30 DAYS TRIAL—

If you want to SAVE MONEY in cooking and heating try the "HEAT KING" AT OUR RISK and prove that it ends drudgery and dirt of coal or wood, cuts fuel bills in half, pays for itself quickly by what it SAVES. You must be satisfied under our liberal guarantee or the burner COSTS YOU NOTHING.

FREE SAMPLE TO AGENTS

and salesmen offered to one energetic man or woman in each locality who will demonstrate and take orders. Mail coupon quick, be first to learn how satisfactory oil heat can really be and how to make REAL MONEY right now, spare or full time. Mail coupon or 1c postcard today—NOW.

UNITED FACTORIES

M-751, Factory Bldg., Kansas City, Mo.



**Slips into
any OLD
STOVE,
RANGE or
FURNACE**

MAIL COUPON Below—NOW!

UNITED FACTORIES,
M-751, Factory Bldg., Kansas City, Mo.
Without obligation, send me your TEST AT YOUR RISK TRIAL OFFER on the wonderful New-type Super Flame "HEAT KING."

Name.....

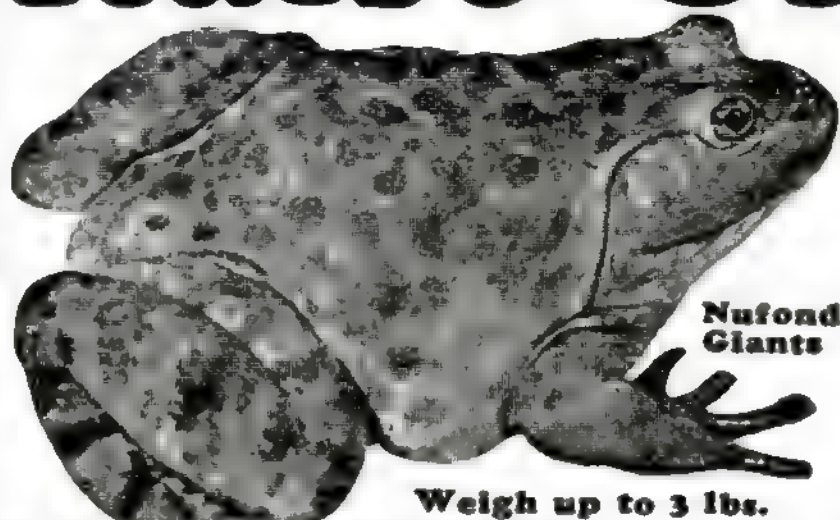
Address.....

City.....

State..... ☐ Check here if also want to know how to make money as sales representative and get NO-COST Sample. This does NOT obligate in any way.

Raise Giant Frogs

A NEW INDUSTRY!



**Nufond
Giants**

Weight up to 3 lbs.

MAKE BIG MONEY raising giant frogs. Breeder lays 10,000 eggs each year. Bull-frogs sell \$1 to \$5 dozen. Biggest money-maker you can raise. Back-yard ponds start you. Any climate suitable. Our FREE book "A Fortune in Frogs" explains everything. Write today.



**FREE
BOOK**

AMERICAN FROG CANNING CO.

(World's Largest Frog Market)

Dept. 133-T

NEW ORLEANS, LA.

HANDEE TOOL OF 1001 USES!

Quicker, Better Jobs . . . Does away with slow handwork. Grinds, routs, drills, carves, saws, sharpens, cuts, polishes, engraves . . . over 100 wheel shapes available. For use at home, in shop or take to job. Weight 1 lb., 13,000 r.p.m. 110 volts, AC or DC. \$10.75 and up. (3 Wheel Shapes Free.)



Plug in any light socket

NEW DeLuxe MODEL!

Revolutionary Performance

For constant service . . . nothing else like this easy-to-handle production tool for saving time and labor. Fastest, smoothest, most powerful tool for its type and weight (12 oz.) 6" long, 1 5/8" diameter. 25,000 r.p.m. \$18.50. (6 Wheel Shapes Free.)

FIVE DAYS' TRIAL

Order either Model today, postpaid in U. S. A. Satisfaction guaranteed.

Chicago Wheel & Mfg. Co.
108 S. Aberdeen St.,
Chicago, Ill.

SEND FOR
Free BOOKLET

FREE BLUEPRINTS



Flying Model of Curtiss Falcon

SEND FOR THEM—THEY'RE EASY TO FOLLOW. Make yourself a flying model of this record-breaking plane with these blueprints and DuPont Duco Cement. Wonderfully strong adhesive, waterproof, transparent, quick-drying, easy-to-use. Duco Cement holds like a bulldog. Send green carton or red disc from 25c tube for free plans to DUPONT, Dept. B-4, Wilmington, Del.

TRANSPARENT • WATERPROOF



5 ft. Flying Scale Models
1 1/3 size of real planes

5 ft. Monocoupe (Illustrated) 5 ft. S. Inson Reliant 5 ft. Heath Parasol

Build planes that are actually one-third the size of real passenger carrying planes! Send today for our new Giant Models—each a strong outdoor flyer—a \$10 value for only \$1. Everything is in the kit—including all liquids—nothing else to buy! Dealers write.

G. H. Q. MODEL AIRPLANE CO.
564b Southern Boulevard New York City



COPPER-OXIDE RECTIFIERS

(Continued from page 583)

quired, also 5 copper terminal strips and 2 end plates cut from 1/8-in. bakelite, as detailed in Fig. 5. Sixteen-gauge sheet copper is used for the copper washers and terminal strips. The lead washers are cut from 1/16-in. lead sheet. All washers are outlined on the sheet metal and the center holes drilled, after which they are cut out with a pair of heavy tin snips. Two 1/4-in. bolts 4 in. long, and two lengths of fiber tubing 3/8 in. outside diameter and 1 1/2 in. long, are also included in the material list.

Be sure that the copper washers are perfectly flat, file off all rough edges and ream out the holes so that they will fit over the fiber tubing. The next step is to form the layer of copper oxide on one side of the copper washers. Place them, one at a time, on the end of a long nail or bolt and hold them over the flame of a bunsen burner, gas torch or gas stove. When the washer reaches a bright cherry red, remove it from the flame and hang it on a nail to cool, as shown in the photo. Make sure that there is a free circulation of air around it. Sixteen nails driven in a board will make a good rack for this purpose.

When cold, you will find that a blue-gray scale has formed on the surface which must be removed carefully from the face side only, with a piece of fine emery cloth. Handle these washers only by the edge. Lay them on a flat surface and do not press hard with the emery cloth as it will cut through the brownish-red copper-oxide deposit below and destroy its rectifying usefulness.

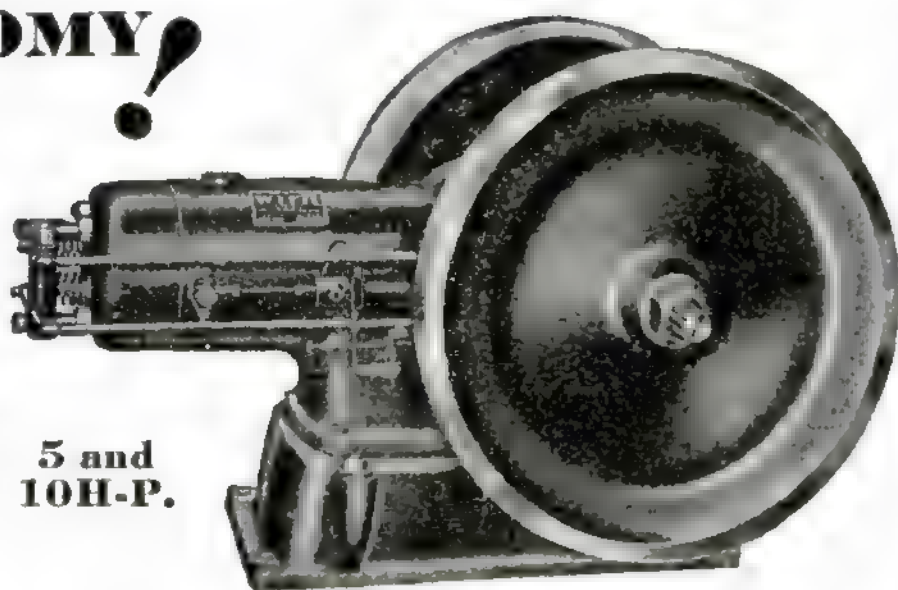
To make the final assembly, Fig. 6, ream the holes in the bakelite end plates, and copper-terminal strips, to pass the fiber tubing snugly. Insert the bolts and assemble the washers and terminal strips, being very careful that the copper-oxide faces are placed exactly as shown in Fig. 6, and keyed in Figs. 6-A and 6-B. Turn the end nuts down as tightly as possible and fasten the copper-strip terminal jumper as shown.

An enlarged blueprint of all diagrams is available, those who wish it should specify blueprint R-214. The rectifier unit requires no further forming; however, the output current may go up a little as it is used for the first few hours. A battery-charger assembly is shown below Fig. 6.

UNBELIEVABLE ECONOMY!

**Lower Power Bills 75%
Reduce Fire Hazards 100%**

Whyt-Rox Chem. Co. writes: "We replaced a 5 H-P. electric motor with a WITTE Diesel Engine and are saving \$65.00 per month."—All WITTE Diesel users report big savings and almost unbelievable economy. Efficient streamline design. Cash or liberal terms.

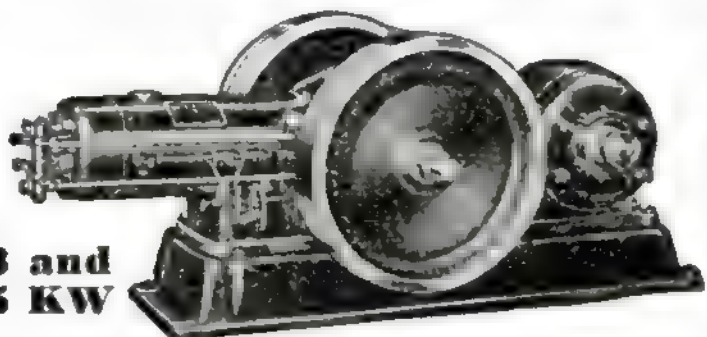


5 and
10H-P.

WITTE DIESEL ENGINES

DIESEL-LITE PLANTS

Produce **ELECTRICITY** for **LESS**
than **ONE CENT** per **KILOWATT**
A.C. or D.C. Current



3 and
5 KW

Diesel-Lite Plants are powered with the economical WITTE Diesel Engine, close coupled by multiple vee belt drive to A. C. or D. C. generators, forming a complete self-contained unit that will furnish electric power for less than one cent per kilowatt. These units have remarkable flexibility and may be used for engine power, electric power or a combination of both. Simple to operate and care for.

Write today for literature and prices

WITTE ENGINE WORKS

1747 Oakland Ave.

Kansas City, Mo.

COMPLETE ELECTRIC PLANTS



ONAN A.C. PLANTS furnish the same current as city service. Operate Radio, Water System, Refrigerator, all Appliances.

SIZES 350 WATTS UP

Have A.C. Current anywhere. Models \$110 and up. Easy to install. Available from stock. Ideal for farms, camps, lake homes, commercial purposes—anywhere electricity is needed.

D. W. ONAN & SONS

954 Royalston Ave., Minneapolis, Minn.

POWERFUL LAB MICROSCOPE

Guaranteed "Studron" Model—415X Power

\$795

Com-
plete

Tested and certified by leading laboratories. Precision built. 7X and 13X interchangeable oculars afford from 183X to 415X powers! Double wheel adjustment. Professional typestand over 7" high. In fine wood case. Only \$7.95 complete. Postpaid if remittance accompanies order. C. O. D. charges extra.

Other Microscopes: 50X Power, \$1.00.....118X, \$1.95

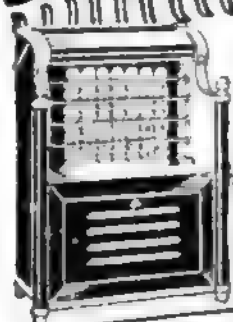
Triple Revolving Objective Model.....\$8.75

Dissecting Sets—Slides—etc—Send for FREE catalog

DWIGHT-CARLSON LABORATORIES

175 Fifth Ave., Dept. P10, New York, N.Y.

HEAT $1\frac{1}{2}$ ¢ Per Hour!



AMAZING INVENTION—New Radiant Heater. Burns 96% air. Makes its own gas. No piping. No installation. Gives roomful of clean, healthful, penetrating heat, like sunshine, for $1\frac{1}{2}$ cents an hour. Hotter than gas or electricity, at 1-10th the cost. Easy to light and operate. No smoke. No soot or ashes. No odor. Portable—carry it anywhere. **Low priced. Guaranteed.**

30-DAYS' TRIAL

Liberal Offer. Try it 30 days at our expense. Write at once for special, introductory, low-price offer and no-risk trial opportunity. No obligation. Send today.

THE AKRON LAMP CO.

1200 High Street, Akron, Ohio

AGENTS!
Make big money. New easy plan. Write quick for territory and Outfit Offer!

TYPEWRITER ½ Price

Now Only

10¢ a Day

AFTER

10 Day

FREE Trial

No Money Down



Fully
GUARANTEED

Positively the greatest bargain ever offered. A genuine full sized \$100.00 office model Underwood No. 5 for only \$39.90 (cash) or on easy terms. Has up-to-date improvements including standard 4-row keyboard, backspacer, automatic ribbon reverse, shiftlock key, 2-color ribbon, etc. The perfect all purpose typewriter. Completely rebuilt and **FULLY GUARANTEED.**

Learn Touch Typewriting

Complete (Home Study) Course of the Famous Van Sant Speed Typewriting System—fully illustrated, easily learned, given during this offer.

Lowest Terms—10 Cents a Day Money-Back Guarantee

Send coupon for 10 day Trial—If you decide to keep it pay only \$3.00 a month until \$44.90 (term price) is paid. Limited offer—act at once.

INTERNATIONAL TYPEWRITER EXCHANGE

231 West Monroe St., Chicago, Ill., Dept. 1001

Send Underwood No. 5 (F. O. B., Chicago) at once for 10-days trial. If I am not perfectly satisfied I can return it express collect. If I keep it I will pay \$3.00 a month until I have paid \$44.90 (term price) in full.

Name.....Age.....

Address.....

Town.....State.....

When writing please mention Popular Mechanics

NEW! SCANTONAL! Oil Burning Stove

The Big Better Burning New
Stove. A modern, efficient,
economical oil burner.

Save Money With
Scanton!

Scanton will burn oil
and heat your home.

Plenty of Heat

Scanton will heat your
home and burn oil.

Scanton will heat your
home and burn oil.

Scanton will heat your
home and burn oil.

WANTED MEN

Wanted Men for Work

Wanted Men for Work
Wanted Men for Work
Wanted Men for Work

Wanted Men for Work



REFRIGERATION

Refrigeration is a must for
every home and business.

Refrigeration is a must for

Refrigeration is a must for
every home and business.

900 WORKSHOP IDEAS

"Make It
Yourself"

Make It Yourself
Make It Yourself
Make It Yourself

Make It Yourself
Make It Yourself
Make It Yourself



You can make a SETTER



with the
help of

NICHOLSON FILES

To make a car, you need a car. You need a car.

Among the very necessary tools are
Nicholson Files, especially the Nicholson
Cabinet and Wood Working Files for
shaping surfaces and smoothing them for
finishing the body.

Nicholson Files are sharp, durable,
extremely high in quality. Look over
your tool kit now and see that it con-
tains all the files you need for the coming
season. Sold by your hardware store or
popular prices. Nicholson File Company,
Pittsford, N. Y. 14534.

Quality

NICHOLSON FILES



Quality
Quality
Quality

THE "BEST" WAY TO MAKE IT



FREE Learn TOUCH TYPING at home this month!

Think of it! 50 to 60 words a minute! Easily acquired in spare time. Royal's "Simplified System of Touch Typewriting" shows you how. Obtain this valuable course, prepared by experts, free with New Royal Portable Typewriter.



SEND NO MONEY
MAIL COUPON
FOR DETAILS



NEW ROYAL PORTABLE. Many exclusive improvements; including Touch Control—"it personalizes the typewriter to your touch;" Finger Comfort Keys;

Centralized Controls; Standard Keyboard. Easy to use—fast—and very durable.



FREE CARRYING CASE. Handsome luggage-style case. Typewriter easily, quickly removed.

LOWEST MONTHLY TERMS. Pay as you use it—only a few cents a day.

**LATEST MODEL
NEW
ROYAL
PORTABLE
with
TOUCH
CONTROL**



Royal Typewriter Company, Inc., Dept. PM-10
2 Park Avenue, New York City.

Please send me details concerning special **FREE TRIAL OFFER** on the New Royal Portable Typewriter with **TOUCH CONTROL**.

NAME

STREET

CITY.....STATE.....

METALLASCOPE

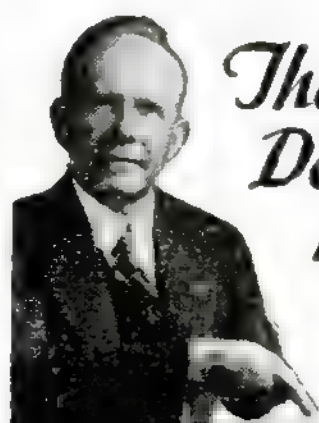
Finds Buried Treasure!

WORLD'S CHAMPION MINERAL LOCATOR now better than ever! Sensational New Model just perfected. Locates ore veins, placers, tunnels, caves **ABSOLUTELY GUARANTEED** to locate buried **GOLD, SILVER, COPPER, etc.** Investigate this amazing instrument.

"If it is metallic, the Metallascope will find it."

METALLASCOPE SALES CO.

1040 S. Broadway Dept. P. Los Angeles, Calif.



*They Said I Couldn't
Do It. But Here It Is
my 1935 OFFER*

**WEAR A WATCH
OR DIAMOND**

30 Days FREE!
then Make Your Own Terms



My confidence in YOU; my confidence in my standard, dependable watches and beautiful genuine diamonds, and my confidence in business conditions cause me to make this unheard of offer. I am going to place as many watches and diamonds in the hands of men and women throughout the land as possible in 1935. **NO MATTER WHAT THE SACRIFICE**, because each watch and diamond will act as a salesman to sell another.

Direct-to-You, Rock Bottom Prices on Nationally Advertised Watches, Diamond Rings and Silverware

What an offer! Nationally advertised watches, diamonds and silverware offered at lowest direct-to-you prices. For nearly a half century we have sold highest quality jewelry all over the world. And now this remarkable offer.

Send for Beautiful FREE CATALOG

Write now—before this offer is withdrawn and get the beautiful **FREE CATALOG**. Select the watch or diamond you want, wear it, examine it, and then write us the terms you desire.

SANTA FE WATCH COMPANY
A6 Thomas Bldg., Topeka, Kan.
We Buy OLD GOLD and STERLING SILVER



HIGH POWERED TELESCOPE

GENUINE BROWNSCOPIES AT AMAZING PRICES

Most powerful in America for the money! 15 power long range telescope. Can see moon's craters or time on pocket watch a block away. 5 sections. Approx. 3 ft. long. Fine lenses. Brass bound. Can be used as powerful microscope. Vol. magn. 512X. Only \$1.69 postpaid. C. O. D. 24c extra.

\$1.69



\$1.98

Special Super-Power 30X Telescope.

Similar to above but more powerful. Guaranteed to see 900 times larger in surface and 30 times closer. 31 mm. objective 4 powerful lenses. Large field. Includes powerful microscope feature. Only \$1.98 postpaid.

BROWSCOPE CO. Dept. 40, 234 Fifth Ave., New York, N. Y.

MAKE MONEY PRINTING

letter and billheads, circulars, cards for friends, spare time. Easy to learn, easy to get jobs. **Printing Presses \$12**; new type faces, complete supplies, lowest prices. Send stamp for catalog. **PEIFFER CO., 53-A, 6 Columbia St., Newark, N. J.**



MUSHROOM SPAWN Free

EARN MONEY RAISING MUSHROOMS IN YOUR BASEMENT—CELLAR OR GARAGE. MATERIAL GUARANTEED. DETAILS AND SAMPLE FREE. NATIONAL MUSHROOMERS ASS'N., Box 206, Park Ridge, Illinois

GET INTO THIS NEW PROFITABLE BUSINESS...THE Simplified 40 VOLT ARC WELDING

Earn \$150 to \$300 monthly profit on garage and general repair work with this New Hobart "Simplified" Arc Welder. Easy to operate, no training required. A size to fit YOUR shop and to meet the demands of your customers. Electric, gas engine, or belted drive. Comes to you on 30 Days' Trial at our risk, lets you prove that it "Pays-for-itself." Write today for valuable booklet, "The Many Profitable Uses of Simplified Arc Welding." It comes to you **FREE**, with detailed information on Arc Welding, no obligation.

HOBART BROS., Box M-1051, Troy, Ohio

\$150 TO \$300 Monthly Profit



PRICE
\$175.00



A NEW FIELD

Enables wide awake men to go into business regrinding detachable rock drill bits. A considerable amount of rock drilling is carried on in every locality where you obtain dull bits and regrind them for 10c to 15c each. Buy a G Grinder, build a profitable business.

C. H. CARLSON MFG. CO.
13-15 Main St. N.E., Minneapolis, Minn.



CENTURY SALESMEN ARE HAPPY!

Because they are making money easily selling our

GENUINE LEATHER TIES

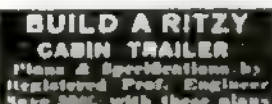
Beautiful new stripes and plaids. Look like silk. Cleaned with a damp cloth. Durable, won't wrinkle. Big profits, repeat orders. Be independent; have your own business. No sales ability needed. Send 50c or stamps for sample and kit. Information free.

CENTURY TIE CO., Dept. A, 2345 W. Grand Blvd., Detroit, Mich.

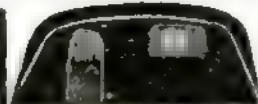


RITZY STANDARD
Uses Auto Axle with Low Mounting 1600.
Size 5'x12'

Get all Materials in Your Home Town.



RITZY COUPE CRUISER
Wapakoneta, Ohio



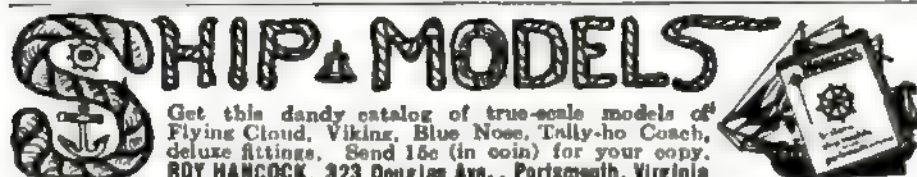
RITZY AIR CUTTER
MAIL DOLLAR TO-DAY for all three Plans to THE RITZY CABIN TRAILER Box 282 x WAPAKONETA, OHIO

New PENNZOIL

THE OIL THAT GOES FARTHER... FASTER... SAFER



Member Penn. Grade Crude Oil Assn. Permit No. 2



Get this dandy catalog of true-scale models of Flying Cloud, Viking, Blue Nose, Tally-ho Coach, deluxe fittings. Send 15c (in coin) for your copy. **ROY HANCOCK, 323 Douglas Ave., Portsmouth, Virginia**

Free

"How to Copper Plate and Etch by Electro-Chemical Process"; an interesting and instructive experiment.

Write to The Porter Chemical Co., 21 Prospect Avenue, Hagerstown, Maryland.

VENETIAN BLIND MATERIALS

Head Rails, Tilt Rails, Bottom Rails, Basswood Slats, Imported English Ladder Tape, Cords and Complete Hardware. Write for prices.

R. A. PETERSON

6900 N. Ashland Blvd., Chicago, Ill.

CHAIN BRAND NEW TYPE \$6.50

Greatest leverage—lightest weight—closest hitch—fastest to adjust and operate—cadmium plated—rated capacity, 1/2 ton—lowest price. Sent prepaid (in U.S.A.) on receipt of \$6.50. Limited offer. Satisfaction guaranteed.

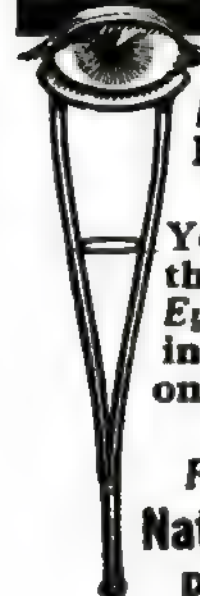
A-B-C MFG. CO., Box 13, QUINCY, ILL.

DON'T WHITTLE OR SHAVE

Sticky Squeaky Windows, Doors, Drawers or Slides. Recent discovery, **SILENITE**—clean, dry, lasting and harmless to fabrics—will keep them working like new. Send 25 cents TODAY for generous stick.

SILENITE SALES, General Motors Bldg., Detroit, Mich.

DIVORCE EYE CRUTCHES!



Get RID of the Spectacle Handicap. The **NATURAL EYESIGHT SYSTEM** makes Victory over Glasses Possible.

You are the Judge—your eyes the Jury—when the Natural Eyesight System goes on trial in your home for four months on our **100% MONEY-BACK GUARANTEE.**

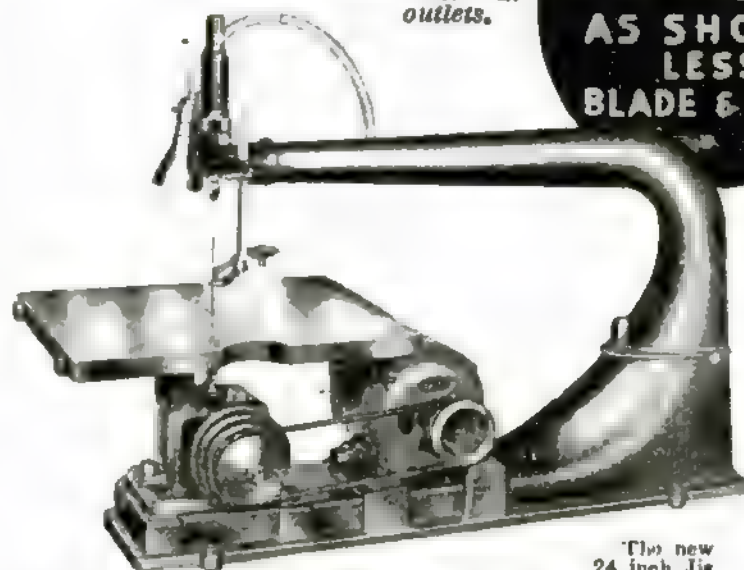
Full Information Mailed **FREE**
Natural Eyesight Institute Inc.

Dept. 510-H Los Angeles, Calif.

NEW DRIVER 1936 POWER TOOLS

J 740 — Price includes Flexo Lamp and two 3-way electrical outlets.

PRICE
\$24.50
AS SHOWN
LESS
BLADE & MOTOR



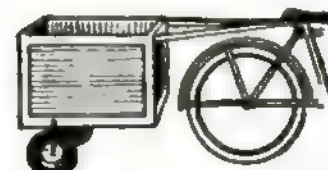
The new 24 inch Jig Saw... with capacity of cut in excess of 4 inches and many other new features... is representative of the unusual values built into DRIVER tools for 1936. Lathes, bench saws, drill presses, band saws, jointers and shapers—three superb lines in three price ranges—are available to you at surprisingly low cost. Stop in at your local hardware store and ask to see the new models.

WALKER-TURNER CO., INC.
1105 Berckman St., Plainfield, N. J.

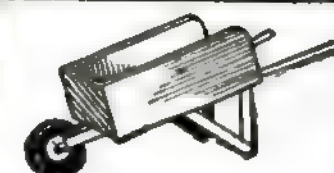
Please send me your folder on 1936 Driver Tools.

Name.....
Address.....
City..... State.....

MORE DRIVER-BUILT-TOOLS ARE MADE & SOLD THAN ANY OTHER MAKE.



BUILD IT YOURSELF



10" x 2 3/4"

Cadmium plated steel wheel with adjustable ball bearings.



Build your own bicycle trailer, wheelbarrow, scooter or coaster wagon with Musselman Doenut cord airplane type tires and wheels. We furnish the drawings. Haul heavier loads and with less than half the effort, on as low as 10 lbs. air pressure. Musselman Doenut tires fold right over big bumps so there is no jolting the load. Will not damage lawn grass or pack soil in gardens or flower beds. This amazing little Doenut cord tire carries a load of 200 lbs. per wheel. Think of it! And rolls along twice as easy, too. Send 15c for blueprint drawing of any vehicle, or 50c for all four.

The Musselman Products Co., 6247 St. Clair Ave., Cleveland, Ohio.

I am enclosing cents in postage for drawing of

Send wheel and parts catalog with drawings.

NAME.....
CITY..... STATE.....

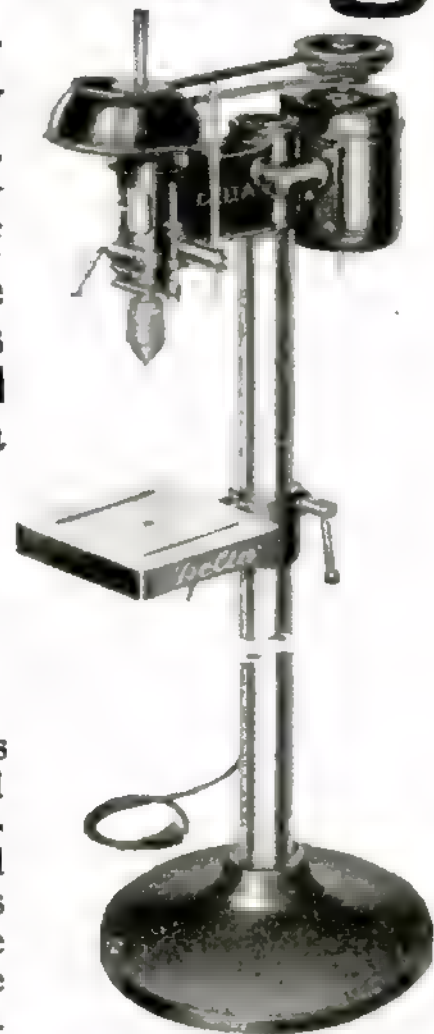
Soon.. New "DELTA" Tools for Woodworking



Delta engineers continue their steady year after year development and pioneering of new tools and new improvements in the motor-driven equipment field. Important announcements will be released shortly that will be of great interest to all Homecrafters. If you are contemplating additions to your shop—be sure to see the 1936 Delta line which includes **Circular Saws, Jointers, Scroll Saws, Drill Presses, Band Saws, Routers, Lathes**, and a complete assortment of attachments.

1936 Catalog Will Be Out Shortly..

Within a short time the 1936 catalog of Delta quality tools will be off the press. It is crowded with photographs and information about the new line of 1936 Delta tools. It contains much valuable information that every man interested in wood-working tools should have. It shows how Delta tools are built to stand the grind of production work, and yet are so low priced as to be within the reach of all, how they save time, money and labor—and quickly pay for themselves.



NEW BOOK for Woodworkers

32 page book "Practical Delta Projects"—crowded with new and "out of the ordinary" things to make—with numerous working drawings, photographs, and easy-to-understand illustrations. Simple, complete instructions make every project easy to follow. Every woodworker should have this book. Send only 10 cents with coupon. Book and 1936 Delta catalog, will be mailed postpaid.



Mail Coupon Today

So your name will be placed on the mailing list to receive the 1936 Delta catalog without delay. Enclose only 10 cents at same time for Book of Practical Delta Projects, 32 pages of new and novel things to make, with numerous blue prints, working drawings, photographs and illustrations—and complete directions.

DELTA MANUFACTURING CO. Dept. A1035, 600-634 E. Vienna Ave., Milwaukee, Wis.

DELTA MANUFACTURING COMPANY, Dept. A1035
600-634 E. Vienna Ave., MILWAUKEE, WISCONSIN

I enclose 10c (stamps or coin), for which please send me one copy of "practical Delta Projects". Also place me on your mailing list to receive 1936 Delta catalog of quality motor-driven woodworking tools.

Name..... Age?.....

Address.....

City..... State.....



Automatic Air Service

\$12 MONTHLY

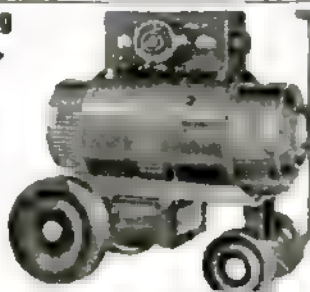
This dependable outfit brings business right to your door. Extra profits from grease, oil, gas will pay for it. Upright, beltless, space saving, fully automatic. Our liberal trial plan lets you see how profitable it can be, before you buy. Ask for details.



8 Hr. Battery Charging

ONLY \$10 MONTHLY

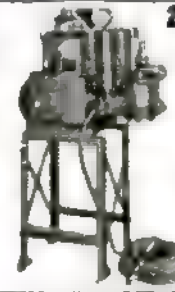
Earn \$50 to \$100 monthly profit with this charger. Puts your shop above competition. Cuts electric bills in half—no expensive bulbs to replace. Recommended by leading battery makers. Liberal Trial at our expense. Ask for details.



Electric Arc Welding

EASY MONTHLY TERMS

You can earn \$300 to \$400 monthly profit on garage and general repair work with Simplified Arc Welding. No special experience required. Electric, gas engine or belt drive. 30 Days Trial—at our expense to prove its profit making ability. Write for details.



20 Minute Car Washing

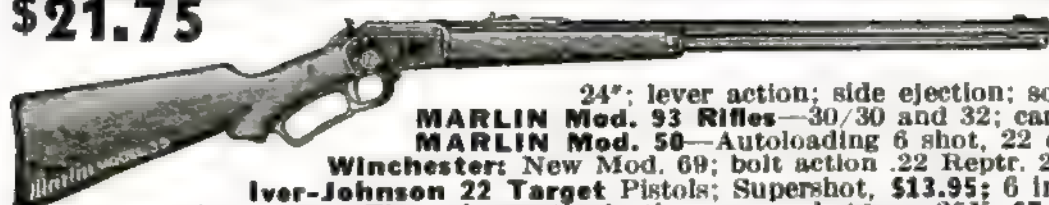
\$10 MONTHLY

Big profits washing cars—Saves two-thirds time, does better job. Savings pay for it. Tear out and mail this ad checking items of interest to

HOBART BROS.
Box M105
TROY, OHIO

DOUBLE YOUR PROFITS... 30 Days Use to Prove it NO INVESTMENT TERMS Write Today

\$21.75



MARLIN 22 Cal. 25 Shot: Model 39

24"; lever action; side ejection; solid top; take-down (Reg. \$25.) Special..... \$21.75

MARLIN Mod. 93 Rifles—30/30 and 32; carbine or full mag. (Reg. \$28.40.) Special..... \$23.75

MARLIN Mod. 50—Autoloading 6 shot, 22 cal. take-down. Special..... \$11.75

Winchester: New Mod. 69; bolt action .22 Repr. 25" barrel; 5 shot. Special..... \$10.95

Iver-Johnson 22 Target Pistols; Supershot, \$13.95; 6 inch 9 shot. Special..... \$7.95

Telescopes; Fine achromatic; leather case and straps; 25X. \$7.95; 30X (Reg. \$15.)..... \$9.95

AIR Rifles; Crossman \$8.95 and \$10.95; Benjamin \$4.95 and \$6.95; Haenel Mod. 40 \$7.45.

\$2 Deposit on C. O. D.'s. Bargain Catalog; Firearms, Binoculars. Micro. & Telescopes, Air Pistols & Rifles; Holsters, etc. Send 3c stamp. LEE SALES CO. (Dept. W), 35 West 32nd St., New York.

I'VE NEVER SEEN YOU USE ANY OIL BUT 3-IN-ONE, TOM ...

YOU NEVER WILL! IT HAS MORE USES THAN ORDINARY OILS, AND IT GIVES MORE PROTECTION

THREE-IN-ONE Oil fills almost every workshop need because it does three jobs instead of only one. Scientific blending of three oils makes it *clean, lubricate, prevent rust* — all at one time. Keeps your workshop equipment in better condition—protects your purse against repair bills!

BUY IT TWO WAYS—HANDY CANS AND BOTTLES



Information on any book free. Write Popular Mechanics Press, Chicago, Ill.

EXTRA CASH for Spare Hours

Easy to sell attractive Christmas Card Assortments. Show marvelous values. 21 unique folders, \$1. Make 100% profit. 7 other Assorts. 50c up. Religious, Humorous and Gift Wrappings. Free sample offer. Friendship Studios, 445 Adams, Elmhurst, N. Y.



Adjustable Peep Sight

Crosman SILENT .22 Rifle

NO CLEANING
LOW COST
AMMUNITION
ADJUSTABLE
POWER



Rifled Barrel

Grooves inside barrel make the Crosman a real rifle with all the hair-splitting accuracy this term implies. Shoots bullet (Pell) same size as .22 powder rifle, but silently, powerfully, with no recoil, using the terrific force of compressed air—same force U. S. Navy uses to drive 2000 lb. torpedoes. Marvelous for target, small game. Single and 20 shot repeater models. No license required. *New low prices on Pells.*

FREE booklet containing important target and game shooting facts. Also free descriptive literature. Ask your dealer to show you a Crosman.

Crosman Arms Co., 417 St. Paul St., Rochester, N. Y.

SEND FOR YOUR COPY

Free! THE STORY OF THE SAXOPHONE

For every music-lover. Tells how Antoine Saxe invented today's most popular instrument. Write now for this thrilling booklet; no obligation.

EASY to play. Buescher True-Tone Saxophones, improved and simplified so you can play tunes immediately. Join school or community band for fun, travel, education. Write for details of **FREE TRIAL** on any band or orchestra instrument—saxophone, cornet, trombone, etc. Buescher Band Instrument Co., 1010 Buescher Bldg., Elkhart, Indiana

BUESCHER



Carl James, Springfield, Ill., first division winner National High School Contest, 1935, plays a Buescher. (6-31-36)

INVEST IN A DIAMOND

A new Loftis Catalog! Tells how you can buy Blue White Diamonds and be sure of Size, Weight, Quality at the right price. Diamonds sent for Free Examination. Money Back Guarantee. Use your credit.



BOOK FREE: Write now for your copy. No obligation to buy.

The Old Reliable, Original Diamond and Watch Credit House

LOFTIS JEWELRY COMPANY 30 N. STATE ST. DEPT. E324 CHICAGO, ILL.

PANTS MATCHED TO ANY SUIT

DON'T DISCARD Your OLD SUIT

Wear the coat and vest another year by getting new trousers to match Tailored to your measure. With over 100,000 patterns to select from we can match almost any pattern. Send vest or sample of cloth today, and we will submit **FREE** Sample of best match obtainable.

MATCH PANTS CO.
20 W. Jackson Blvd., Room 1160, CHICAGO



Balance as above with 1-50; 1-20; 2-10; 1-5 and 2-2 gram weights base 4" x 9"—\$4.75. Catalog with 3000 illustrations of laboratory apparatus sent for 50c. Catalog listing 10000 chemicals, drugs, flavors, etc., and 1700 scientific books sent for 25c.

Laboratory Materials Company, 639 E. 71st St., Chicago, Ill.

GO INTO BUSINESS Make 100% to 300% Profit!

Sell new and used clothing direct from your home, auto or store. Undersell all competition. **EASY SALES—FAST REPEAT ORDERS!** We furnish everything and show you how. Handsome profits every day in the year. No selling experience necessary. Satisfaction guaranteed. Write at once for our Big Money Catalog—It's **FREE!** **ACME MERCHANDISE COMPANY, 555 Roosevelt Rd., Dept. D-16, Chicago, Ill.**



EARN BIG MONEY AT HOME!

Raise mushrooms in your basement, cellar, garage, idle places. We buy crop. Experience unnecessary. **FREE** Book.

MUSHROOM GROWERS OF AMERICA, HN-433, N. Clark St., CHICAGO, ILL.

When writing to advertisers please mention Popular Mechanics

TALK-SING-PLAY thru your own radio

BROADCAST your voice on programs coming through your radio set—make announcements from any part of house—inject wise cracks, josh and mystify friends. "World Mike" made especially for home use, attached in jiffy, any set. **Not a Toy.** Also put on own programs at home, parties, club affairs. Barrels of fun! Easy to operate. **PRICE**

ONLY 25c POSTPAID

Mammoth 800 page catalog of novelties, jokes, tricks, books, etc. 10c.

JOHNSON SMITH CO.,
Dept. 854 **RACINE, WIS.**

THE ART OF DANCING

THE CARLO, CONTINENTAL,
RHUMBA, KISS DANCE, ETC.

LEARN TO DANCE THE LATEST STEPS. Be popular this season. Really good dancers are always admired—always popular guests. Partners welcome them eagerly. With the aid of this book you can learn the newest, smartest steps without a teacher and become a dancer who is sought after. After following the instructions in this new book you won't need to make excuses when the dance music starts. Besides you'll get lots of fun out of parties and dances. If you want to become a perfect dancer, learn to dance at home this new, easy way.

WHAT THE BOOK TELLS: How to develop poise and control, how to improve your dance steps, the art of holding, how to walk to music, how to lead, how to do the latest Fox Trot Steps, Natural and Reverse Turns, the Reverse Wave and Change of Direction Steps, the Quickstep, swaying to music, how to Waltz, Backward Changes, how to do the Continental, the famous Kiss dance, the Manhattan Dance, the College Rhumba, the Carlo, the Charleston, etc., etc. 16 chapters, nearly 100 illustrations are given; everything is made so plain that you'll be dancing before you know it. **PRICE 25 CENTS, POSTPAID**

JOHNSON SMITH & CO., Dept. 854, **RACINE, WISCONSIN**



ELECTRIC EYE PHOTOELECTRIC CELL

The Electric Eye—Photoelectric Cell—is one of the very latest scientific discoveries that has many practical uses. A single flash of light can open a garage, window, door, turn lights on or off, stop or start a motor, etc. The Electric Eye is the basis of all television sets. The miracle with a million uses! No experimenter, no inventor (and who isn't?) should be without this latest scientific novelty. Make interesting discoveries. Not only can it be used for all of these purposes, but it can also be used to amuse and delight people by creating **WEIRD** effects. Lights go off, doors bang, bells ring all with a flash of light. Amusing, entertaining, novel, scientific. The Electric Eye, postpaid, only **25c**. **Supersensitive Electric Eye, better quality, 50c.**

Johnson Smith & Company, Dept. 854, Racine, Wis.



Learn to be a Tap Dancer

PRICE 25c

Why envy the easy rhythm and fascinating grace of Step'n Fetchit, Fred Astaire and others? Now you can learn to tap dance in **ONLY 6 HOURS** by a new, simplified course of lessons by Prof. Hawley Wilson. No special ability needed.

Be smart! Learn tap dancing. Everybody's tapping. The whole town is tapping. Learn to beat out a tune with your feet. Hostesses love it. Friends adore it. It's fun and you'll thoroughly enjoy the lessons. Besides, tap dancing is not only an invigorating and entertaining accomplishment, but it is also an invigorating and health-giving exercise for making the limbs supple and giving a "springy" feeling of fitness to the whole body. It promotes slenderness—nature's way, without pills, drugs or dieting. Here is what some of our readers say: "... wonderful benefit. Thank you for adding tap dancing to my accomplishments." And another: "My friends were amazed. I dare not recommend your course for fear of competition." **PRICE 25 cents.**



THE SCIENCE OF JIU JITSU



FEAR NO MAN

"THE SCIENCE OF JIU JITSU" is the title of a new book, dealing with the Japanese art of self-defense from entirely different angles. Many new methods of attack and defense, etc., are given, illustrated with specially drawn diagrams so that you cannot fail to understand them. The book deals fully with breakfalls, trips and throws, groundlocks, wrist locks, "shake-hand" trick, body hold under arms, arm press, defense against revolvers, defense for strangling, knee and ankle throw, straight and reverse armlocks, "the scissors," the splits, head lock and kidney squeeze, holding a man down, the kick at stomach, the body lever, double knee throw, defense against stick, stick attack, defense against knife, knee kick and ankle jerk, armpit leg lock, one hand grip on throat, defense against two assailants, the colique rolling breakfall, the stomach throw, secret thumb knockout, producing unconsciousness, various nerve pinches, defenses for women, etc., etc. With the aid of this book you can learn to protect yourself everywhere under all circumstances with nature's weapons.

PRICE 30 CENTS POSTPAID.

JOHNSON SMITH & CO., Dept. 854, **RACINE, WIS.**

BOYS! THROW YOUR VOICE

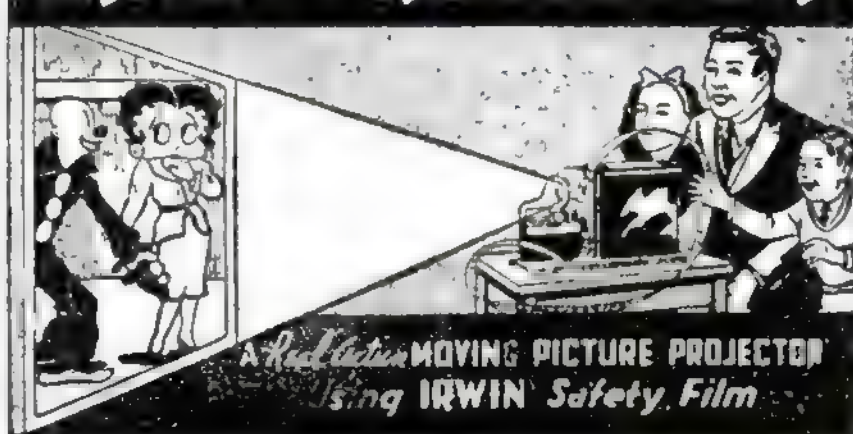
Into a trunk, under the bed or anywhere. Lots of fun fooling teacher, policeman or friends.

THE VENTRILO

a little instrument, fits in the mouth out of sight, used with above for Bird Calls, etc. Anyone can use it. **Never fails. A 64-page Book on Ventriloquism and the Ventrilo. ALL FOR 10c POSTPAID.**



IRWIN PROJECTOR



Here is a real action **MOVING PICTURE PROJECTOR** at the lowest price ever asked. It projects amazingly clear pictures on the wall or screen up to 14x18 inches in size. Perfectly safe in the hands of any child. Once the film is inserted all you have to do is turn the crank and watch the pictures. Operates on two ordinary flashlight cells obtainable anywhere. Uses non-inflammable safety film. Machine measures 5x3 1/4 x 1 1/4 inches, bright red enameled heavy steel case, complete with crank, high powered lens, battery case, special electric crystal bulb, fiber switch—all in handsome box, complete, ready to use. Batteries not included. **PRICE POSTPAID... 50c**

Prices of fireproof film (50 different subjects including Pop-Eye, Betty Boop, Ko-Ko, Bimbo, Scrappy, Krazy Kat, etc.), 15 cents each postpaid. Add 10c for our big novelty catalog.

JOHNSON SMITH & COMPANY, Dept. 854, RACINE, WISCONSIN

Boy Electrician with 75 illustrations for making Batteries, Dynamos, Motors, Telegraph apparatus, Telephone, Lights, Bells, Alarms, Coils, "Wireless" Current Reverser, Electric Engine, Radio, etc. **Price 10c Postpaid. J. S. & CO.**

BLANK CARTRIDGE PISTOL

**REVOLVER
STYLE**

Three new models now out, 25c, 50c and \$1.00. Well made and effective. Modelled on pattern of latest type of Revolver. Appearance alone enough to scare a burglar. Takes 22 Cal. Blank Cartridges obtainable everywhere. Great protection against burglars, tramps, dogs. Have it lying around without the danger attached to other revolvers. Fine for 4th of July. New Year's, for stage work, starting pistol, etc. **SMALL SIZE 4 in. long 25c. MEDIUM SIZE 5 in. long 50c. LARGE SIZE 6 in. long \$1.00. BLANK CARTRIDGES 50c per 100. HOLSTER (Cowboy type) 50c. Shipped by Express only not prepaid. Big novelty catalog 10c.**

JOHNSON SMITH & CO., Dept. 854, Racine, Wis.



Radio Book 10c

Add 10c and we will send you a book called "EFFICIENT RADIO SETS." Tells how to make inexpensive radio receiving sets, crystal as well as electrical, how to make short wave set, etc. Fully illustrated. **Price 10c Postpaid.**



HOW TO WIN PRIZE CONTESTS

This book may not make you rich, but it will show you how to make a good living. Tells the best methods and principles for winning the big prize contests which are announced almost daily. According to reports from readers, the contents are a real source of assistance in overcoming some of the problems offered by the prize contests. Many people make tidy sums of money by solving the contests. The methods and principles presented have been selected from those advanced by the winners of some of the hardest and largest contests staged thus far. **Only 10c Ppd.**



JOHNSON SMITH & CO.

Dept. 854

RACINE, WIS.

A copy of our NEW CATALOG mailed on receipt of 10c., or the De Luxe Edition with cloth binding 25c. Bigger and better than ever. Only book of its kind in existence. Nearly 600 pages of the latest tricks in magic, the newest novelties, puzzles, games, sporting goods, rubber stamps, unusual and interesting books, curiosities in seeds and plants, etc., unobtainable elsewhere. Remit by Coin, Money Order, or Stamps, for all articles listed above. If by Check, add 15c for exchange. Canadian money and stamps, and B. H. P. O. Orders accepted.



